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Guidance for the Reregistration of Pesticide Products Containing Sodium and Calcium Hypochlorite Salts as the Active Ingredient

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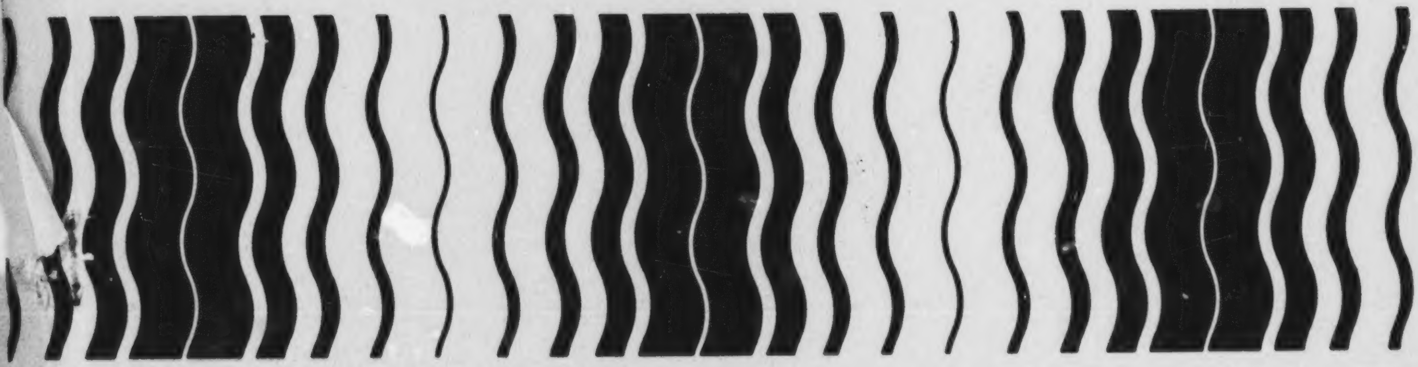

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GUIDANCE FOR THE REREGISTRATION OF PESTICIDE PRODUCTS

CONTAINING

AS THE ACTIVE INGREDIENT

SODIUM AND CALCIUM HYPOCHLORITE SALTS

CASE NUMBER 0029

ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF PESTICIDE PROGRAMS

WASHINGTON, D.C. 20460

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ABSTRACT

As part of the Resource Conservation and Recovery Act (RCRA), the U.S. EPA has promulgated regulations for the owners/operators of facilities which treat hazardous wastes by incineration to ensure that these incinerators are operated in an environmentally responsible manner. Compliance with the performance standards specified in the regulations is demonstrated by conducting a trial burn, which involves measurement of particulate emissions, hydrochloric acid emissions, and Destruction and Removal Efficiency (DRE) for the Principal Organic Hazardous Constituents (POHCs) of the waste. During subsequent routine operating burns, carbon monoxide is the only chemical species for which effluent concentrations are monitored. It might be desirable to supplement this measure of overall combustion efficiency with an organic monitoring technique that could provide a more direct measure of POHC emissions and, thus, of DRE. If such a task could be conducted in a technically and economically feasible manner, it would improve the confidence level that intermittent release of hazardous materials was not occurring during routine operation of an incinerator.

The objective of this field program was to evaluate the reliability of non-methane hydrocarbon analyzers as a continuous indicator of DRE of a hazardous waste incinerator. The tasks undertaken include: (1) fabrication of a sample extraction/conditioning system for transfer of combustion gas to the hydrocarbon analyzers; (2) evaluation of the reliability of two non-methane hydrocarbon analyzers under conditions of continuous operation at a hazardous waste incinerator; and (3) determination of the correlation of non-methane hydrocarbon concentrations with combustion efficiency.

During a 5-day test, two non-methane hydrocarbon analyzers (Columbia Scientific Industries Corporation Model 500-2E and HNU Systems, Inc. Model 201-250) were evaluated. During the tests, the sample conditioning/analysis system operated reasonable well.

The non-methane hydrocarbon concentrations measured by the CSI and HNU analyzers were observed to be about 20% of the total hydrocarbon analyzer concentration. The ratio of non-methane hydrocarbon concentrations observed by the CSI and HNU analyzers was observed to be about 1:1; i.e., the analyzers respond about equally to the non-methane hydrocarbons present.

A linear correlation between the non-methane hydrocarbon concentrations and carbon monoxide concentration was not observed. Specifically, over the range of operating conditions and combustion efficiency observed in this field study, the non-methane hydrocarbon appears to be independent of carbon monoxide concentration.

INTRODUCTION

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA sec. 3(g)) directs EPA to reregister all pesticides as expeditiously as possible.

To carry out this task, EPA has established the Registration Standards program, which will review all pesticide products containing active ingredients first registered before January 1, 1977. Pesticides will be reviewed in use clusters which have been ranked to give earliest review to pesticides used on food and feed crops.

The Registration Standards program involves a thorough review of the scientific data base underlying pesticide registrations and an identification of essential but missing studies which may not have been required when the product was initially registered or studies that are now considered insufficient. EPA's reassessment results in the development of a regulatory position, contained in a Registration Standard, on each pesticide and its uses. The Agency may require the registrant to modify product labels to provide additional precautionary statements, restrict the use of the pesticide to certified applicators, provide reentry intervals, modify uses or formulation types, specify certain packaging limitations, or other requirements to assure that proper use of the pesticide will not result in adverse effects on the environment.

In this General Registration Standard EPA has implemented a simplified procedure for registering new products or reregistering old products which contain sodium hypochlorite or calcium hypochlorite as a single active ingredient and only those inert ingredients which are generally present as part of the manufacturing process, or as specified in this standard. Based on an evaluation of all the acute toxicity data available, the Agency is convinced that the majority of the several thousand registered products meeting these specifications should be labeled for Toxicity Category I[1] due to their known potential for causing irreversible damage to eyes. Hence, all such products may be registered or reregistered under this standard using one of the standard labels contained in Appendix IV-5 (page 90) of this document. This procedure is designed to reduce processing time and costs to the Agency and registrants, while continuing to assure human and environmental protection.

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[1] Toxicity Categories range from IV to I, with I representing the highest level of toxicity and/or irritability (40 FR 28279). Products which can result in any eye irritation that is irreversible within 21 days possess Toxicity Category I eye irritation potential. Such products must use DANGER as their signal word on the label. Such products must also be marketed in child-resistant packaging if used in the home environment (46 FR 15105).

All applicants for registration of new products and current registrants whose products conform to the formula specifications contained in this standard, as discussed in Chapter I(E) beginning on page 8, may register or reregister their products under the general registration procedures. Those who qualify under the Formulator's Exemption[1] may do so by completing the certification form, Appendix I-A, (page 63). Those who do not qualify under the formulator's exemption may also register or reregister their products using the general registration procedures, provided they complete and sign the combined certification and "cite-all" method of support, Appendix I-B, on page 64. Based upon this certification, the Agency will assign a General Registration Number which has a unique company prefix followed by a number common to each formulation type, and will notify the registrant when his product has been registered or reregistered.

No data are required to be submitted to support general registrations because all of the data necessary to support registration for the products covered under this standard have been submitted and reviewed. See Appendix II-2 on page 57 for data citations. Specific data requirements are itemized in the data tables on pages 24-37 for the sole use of those applicants or registrants who choose to generate their own data instead of using the general registration procedures to register or reregister their products.

While the general registration procedures are designed to process the majority of single active sodium or calcium hypochlorite manufacturing-use and end-use products, the Agency is aware that there may be a few products which are labeled for Toxicity Category II, III, or IV or for which the applicant or registrant wishes to propose such categories. Additionally, registrants whose products are not eligible for the Formulator's Exemption may wish to develop their own supporting data rather than rely upon and offer to pay compensation for the data supporting registration of the affected products under this standard. These registrants are not eligible to use the simplified general registration procedures, and therefore their products must be registered or reregistered subject to the data requirements discussed in Chapter II, Requirement for Submission of Generic Data, and Chapter III, Requirement for Submission of Product Specific Data.

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[1] The formulator's exemption applies to a registrant of a product if the source of his active ingredient(s): (1) is a registered product and (2) is purchased from a source which does not have ownership in common with the registrant's firm.

There are a few registered products which, contain sodium or calcium hypochlorite as a single active ingredient, but also contain intentionally added inert ingredients such as detergents, soaps, abrasives, and solid or liquid diluents other than water. These products do not meet the specifications of this standard, as described in Chapter I(E) beginning on page 8, and all have been registered with product specific chemistry and acute toxicity data, establishing their appropriate toxicity categories. They are not subject to reregistration under this standard. The Agency estimates that this group of products comprises no more than 5% of all single active sodium and/or calcium hypochlorite products. Applicants for registration of new products containing intentionally added inert ingredients will continue to be registered according to conventional registration procedures.

The Agency is confident that the general standard approach will streamline the registration/reregistration process, and strongly encourages registrants and applicants for registration of products which conform to the specifications in this document to use this streamlined process. In an effort to maintain flexibility however, applicants will be permitted the option of registering new Toxicity Category I products and reregister current Toxicity Category I products either by the new streamlined process or by the conventional registration process. Registrants of current products that conform to the specifications described in this standard (i.e. contain only sodium or calcium hypochlorite with no intentionally added inert ingredients) but which are labeled as Toxicity Category II, III, or IV, must either supply the product specific data specified in Table C to substantiate the toxicity category claimed for their products, or change their labeling to that specified for Toxicity Category I, per Section 162.10 of 40 CFR. Registrants who change their labeling to Toxicity Category I may reregister their products by either the general registration or the conventional registration process if they are otherwise in compliance. Registrants of current products who wish to maintain other than Toxicity Category I labeling must be reregistered using the conventional registration/reregistration process and cannot use the general registration process.

If you decide to request the Agency to cancel the registration of any of your products subject to the requirements of this Guidance Document, please notify the Product Manager named in the cover letter, within 90 days from the receipt of this document. If you decide to maintain your product registration(s), you must provide the information described in the following pages within the time frames specified. EPA will issue a notice of intent to cancel or suspend the registration of any currently registered product which does not comply with the requirements set forth in this Guidance Document.

You are reminded that FIFRA sec. 6(a)(2) requires you to submit any factual information which raises concerns of possible unreasonable adverse effects of a pesticide if such information comes to your attention. You should notify the Agency of interim results of studies in progress if these results show possible adverse effects.

I. REGULATORY ASSESSMENT

A. Introduction

This chapter presents the Agency's regulatory position and rationale based on an evaluation of all registered products containing sodium or calcium hypochlorite as the sole active ingredient.

The products subject to the requirements of this standard include a) liquid, sole active ingredient, sodium hypochlorite products with water as the only intentionally added inert ingredient, and b) solid, sole active ingredient, calcium hypochlorite products, provided that their formulations are consistent with those defined in Section (E) beginning on page 8 of this standard, and be in child-resistant packaging if the products are recommended for use in or around the home. This standard provides three options to applicants who wish to register or reregister sodium and calcium hypochlorite products. These options are described below.

Option I. Reliance on Available Data to Support Registration of Toxicity Category I Products

Applicants for registration or reregistration will make use of existing data available for support of registration/reregistration of products labeled for Toxicity Category 1 and if not eligible for the Formulator's Exemption, compensate data developers for use of this data. Applicants will also adopt the generic labeling provided in Appendix IV-5. Registrations for Option 1 will be issued under the general registration process.

Option II. Development of Data Independently to Support Registration of Toxicity Category I Products

Applicants for registration or reregistration who are not eligible for the Formulator's Exemption and who wish to develop their own data rather than rely upon and pay compensation for the data cited under this standard must submit the data requried in Table A and Table B, if the product is for manufacturing-use, or Table C, if the product is for end-use. Applicants will also adopt the generic labeling provided in appendix IV-5, on page 90 of this standard. Registrations for Option II will only be considered and be issued under the conventional registration/reregistration process.

Option III. Development of product-specific data to support labeling for lower toxicity categories II, III, and IV

There may be a few registrants who qualify for the formulator's exemption and therefore are not subject to the generic data requirements, but who nevertheless wish to develop data to support labeling for lower toxicity categories, or to support an exemption from the child-resistant packaging requirement. Such applicants must submit the product specific data required under Table C (pages 35-37). Applicants who are not eligible for the Formulator's Exemption but who wish to register their products under toxicity category labeling II, III, or IV must submit both sets of data, generic data (Table A, page 24) and product specific data (Table B or C pages 32-34 and 35-37). Applicants will not be able to adopt the generic labeling, as it was developed for Toxicity Category I labeling and will have to develop data commensurate to the toxicity category proposed for their product. Registrations for Option III will only be considered and be issued under the conventional registration/re-registration process.

B. Description of Chemicals

Sodium and calcium hypochlorites are chlorinated inorganic disinfectants. Sodium hypochlorite is normally sold only as a liquid while calcium hypochlorite is principally sold as a solid, powder, granular, or tablet. Products containing 5 to 6 percent sodium hypochlorites are commonly known as household bleach; and those containing up to 12.5% 1/, the maximum registrable strength, are known as industrial strength sodium hypochlorite.

The Chemical Abstracts Service (CAS) Registry number for sodium hypochlorite is 7681-52-9 and its EPA Chemical Code number is 014703. For calcium hypochlorite the respective numbers are 7778-54-3 (CAS) and 014701.

Sodium and calcium hypochlorites are registered as sanitizers and disinfectants of surfaces, as disinfectants of water, and as chemicals to control microorganisms on certain foods and in certain industrial processes. For a detailed listing of the use patterns covered by this standard refer to Section (E)(3) on page 14 of this chapter.

C. Regulatory Position and Rationale

Based on a review of the available scientific data and other relevant information on the sodium and calcium hypochlorites, the Agency has made the following determinations:

1. Applicability of the General Registration Process

   - The use patterns and hazards are generally consistent among products and are well understood by both producers and users.

1/ The Agency does not register sodium hypochlorite products with label declaration higher than 12.5% because these products loose their strength rapidly and significantly if manufactured at higher concentrations.

- o There is sufficient information to classify most single-active-ingredient sodium and calcium hypochlorite products as general use products.

- o The time and resources required for a product-by-product review would not afford additional public health protection commensurate with the additional time and resources required over the general registration approach for products in Group 1.

- o Based on the above findings, general registration certifications will be accepted for all applicants seeking to market sodium or calcium hypochlorite as sole active ingredient pesticide products in Group 1.

2. Registration Status

- o Products formulated and labeled in accordance with this standard will have a composition that warrants the proposed claims.

- o Products formulated and labeled in accordance with this standard, when used in accordance with widespread and commonly recognized practice, will not generally cause unreasonable adverse effects on the environment.

3. Other Findings

- o After reviewing the human hazard data for sodium and calcium hypochlorite, the Agency has determined that child-resistant packaging (44 FR 13109) is required for all end-use products for which Category I eye irritation toxicity labeling is appropriate, if labeled for use in the home environment.

Rationale

After a review of the available product chemistry and toxicity data, the Agency has determined that all sodium and calcium hypochlorite single active ingredient products are eye irritants, but that the potential for hazard from use of these products may be mitigated with appropriate precautionary labeling.

Manufacturing-use sodium hypochlorite and calcium hypochlorite products are defined by this standard as 12.5% and 65% respectively. Therefore, product chemistry and acute toxicity data developed with these formulations by the manufacturers will also support end-use products of the same concentration and can be extrapolated to support end-use concentrations of sodium hypochlorite down to 5.25%, since as defined by this standard, they are simply aqueous dilutions of the 12.5% manufacturing-use product, and the extra water does not alter the precautionary labeling prescribed by this standard.

Based on a review of the available product chemistry, toxicity, environmental fate, and ecological effects data on sodium and calcium hypochlorites, the Agency has determined that any hazards associated with the uses of sodium and calcium hypochlorite are relatively small, when these chemicals are used in accordance with the label directions set forth in the sample labels found in Appendix IV-5, (page 90) of this standard.

The Agency has determined that the available acute toxicity data and fish and wildlife data are sufficient to address the acute toxicity risks to humans and the environment, and has concluded that there is no need for chronic or subchronic data to continue registering sodium and calcium hypochlorite products for the registered uses.

The most important use of the hypochlorites is for treating water supplies, for which they have been used for almost a century. To date the most significant concern is that the hypochlorites have been associated with the formation of trihalomethanes in drinking water, which in turn have been inconclusively implicated with chronic adverse effects. The Office of Drinking Water of EPA has addressed this risk by setting a maximum contaminant level (MCL) for the trihalomethanes in drinking water at 100 parts per billion (equivalent to 100 micrograms per liter). The approved levels of the hypochlorites in drinking water ranges from 0.2 to 1.0 part per million. The Agency believes that this level is consistent in reducing the dietary exposure to hypochlorites, and in turn, to make it possible for water supplies to maintain the levels of trihalomethanes within regulatory limits.

The hypochlorites are the most widely used chemicals for disinfecting water supplies as they have proven to be safe, practical to use, and economical. The hypochlorites are listed as generally recognized as safe for use as post harvest fungicides on agricultural commodities at 40 CFR §180.2. They are also listed as sanitizers, for use as terminal sanitizing rinses of food handling utensils at 21 CFR §178.1010.

Given these considerations, the Agency believes that in the absence of significant long term dietary exposure to the hypochlorites, there is no need for chronic or subchronic studies. If it comes to the attention of the Agency that hazards due to long term dietary exposure may be significant, then long term studies will be required.

The Agency has decided not to perform a full ecological effects hazard assessment of the currently accepted uses that result in point source discharges of effluents treated with sodium and calcium hypochlorites. This decision is based on the premise that facilities which discharge large quantities of treated effluent will, in all likelihood, be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit. Such permits are tailored to a specific site or point of discharge and are usually required in situations which could result in large and prolonged effects on the environment. Small discharges, by contrast, normally do not require NPDES permits because their effects are usually localized and transitory in nature.

Finally, the Agency has determined that the required hazard labeling, specified in this standard, is sufficient to minimize the likelihood of significant discharges of effluents containing sodium and calcium hypochlorite.

All environmental fate data requirements for the hypochlorite salts have been fulfilled by the document, "Ambient Water Quality Criteria for Chlorine" (Tobler et al., MRID GS029026), published by the Environmental Protection Agency.

The Agency has decided to continue its current policy of exempting single active sodium and calcium hypochlorite formulations from the product-by-product efficacy data requriement normally levied on santizers and disinfectants. The Agency has concluded that the published literature data can reasonably be extrapolated to the full range of these products.

D. Criteria for Registration Under this Standard

To be registered under this standard, products must contain either sodium hypochlorite or calcium hypochlorite as the sole active ingredient, and must conform to the product composition, acute toxicity limits, use pattern requirements, and the required labeling prescribed in various sections of this standard.

Applicants of products affected by this standard must comply with all terms and conditions described in it, including submission of an application for pesticide registration and a general registration/reregistration certification.

Applicants who wish to propose Toxicity Category II, III or IV labeling for their products or who wish to develop their own supporting data rather than rely on or offer to pay compensation for the data cited in this standard must satisfy the labeling, packaging, and data requirements, as specified in Table A, B, or C, in accordance with the guidance package.

E. Acceptable Ranges and Limits

1. Product Composition Standard

a. Liquid Formulations

The vast majority of registered liquid formulations consist of products with approved labels declaring 12.5%, 10.0%, 9.2%, or 5.25% sodium hypochlorite as the sole active ingredient.

The inert ingredients consist of small amounts of impurities which are carried over into the finished product from the starting materials and from minor side reactions, and water, which accounts for the bulk of the finished product. The formulations specified in this standard do not permit the addition of deliberately added inert ingredients.

The unspecified inorganic salts which may be present in amounts ranging from 0.0% to 0.5% are derived from the starting materials used to make the finished product, i.e. chlorine gas and caustic soda (sodium hydroxide). Starting materials must have impurity concentrations lower than those listed below.

Chlorine Gas

Organic Impurity	Average Concentration parts per million
Chloroform	20
Carbon Tetrachloride	20
Phosgene	12
Hexachloroethane	<5
Hexachlorobenzene	<5

Inorganic Impurity	
Nitrogen Trichloride	4.9
Bromine	116
Ferric Chloride	<1
Nitrosyl Chloride	N/A
Nitrogen Oxide	N/A

Caustic Soda

Chemical Specifications			50%	73%	Flake & Solid
Sodium Hydroxide	Equiv.	NaOH	49.0-51.0%	70.0-73.0%	97.0% min
Sodium Oxide	Equiv.	Na_2O	38.0-39.5%	54.2-56.6%	75.2% "
Sodium Carbonate		Na_2CO_3	0.20% max	0.25% max	0.70% max
Sodium Chloride		NaCl	1.10% "	1.60% "	2.15% "
Sodium Sulfate		Na_2SO4	0.020% "	0.030% "	0.10% "
Sodium Chlorate		$NaClO_3$	0.10% "	0.12% "	None
Silicon		Si	0.010% "	0.015% "	0.02% "
Iron		Fe	0.0005% "	0.0007% "	0.0025% "
Calcium		Ca	0.0007% "	0.0010% "	0.0015% "
Magnesium		Mg	0.0010% "	0.0015% "	0.002% "
Aluminum		Al	0.0003% "	0.0005% "	0.001% "
Manganese		Mn	0.00001% "	0.00002% "	0.0005% "
Copper		Cu	0.00007% "	0.0001% "	0.0001% "
Nickel		Ni	0.00007% "	0.0001% "	0.0001% "

Hence, products marketed under the general registration standard must conform to one of the following formulations with the label declaration being the minimum which may be present in the product as long as it is in channels or trade.

		Lower Limit	Upper Limit
(i)	Sodium Hypochlorite	12.5%	15.6%
(ii)	Sodium Hypochlorite	10%	12.5%
(iii)	Sodium Hypochlorite	9.2%	11.5%
(iv)	Sodium Hypochlorite	5.25%	6.6%
	Inert ingredients		
	Sodium Chloride		12.5%
	Sodium Hydroxide		2.0%
	Sodium Carbonate		0.5%
	Inorganic Salts of Copper and Iron		0.5%
	Other Inorganic Salts 1/		0.1%

Because of the inherent instability of liquid formulations of sodium hypochloride, manufacturers of a liquid hypochlorite product are permitted to overformulate their products up to 25 percent above the label declaration. Overformulation will assure that the concentration of active ingredient (A.I.), as declared on the label, will be present in the product for a reasonable period of time after manufacture. Therefore, as indicated above, products which declare 12.5 percent A.I., the maximum allowable label declaration for liquid hypochlorite products, may contain an absolute upper limit of 15.6 percent A.I. in the product. To calculate the upper and lower limits the active ingredient for your product use the following formula:

% A.I. declared on label x 1.25 = A.I. Upper Limit in the product
% A.I. delcared on label = A.I. Lower Limit in the product

EXAMPLE: The ABC Chemical Corporation has a registered product with a label declaration of 10 percent A.I. The product must contain between 10.0 and 12.5 percent A.I.

10.0 x 1.25 = 12.5 A.I. Upper Limit
10.0 = 10.0 Lower Limit

1/ Inorganic salts of the metals listed in the specifications for caustic soda listed on page 9.

b. Solid Formulations

The vast majority of registered solid products are granulars, powders, or tablets with approved labels declaring 65% or 70% calcium hypochlorite. Consistent with generally established manufacturing practice this material is prepared by reacting commercially available chlorine gas (99.9% purity) with an aqueous suspension of lime to yield 65% to 70% calcium hypochlorite, which is then dried to remove water and soluble impurities. The remaining impurities are those which are generally present as part of the manufacturing process, with no deliberately added inert ingredients; except in the case of tablets which may contain mold release agents as specified in this standard.

Lime used in these formulations must have impurity concentrations lower than those listed below.

Calcium Hydroxide	95%	-	99%
Calcium Carbonate	0.1%	-	1%
Calcium Sulfate	0.01%	-	0.5%
Percent Acid Insolubles	0%	-	0.757%

Metals (Maximum)

Ti	45.0ppm
Mg	4000.0ppm
Si	2500.0ppm
Cu	2.0ppm
Mn	25.0ppm
Co	1.5ppm
Ni	2.5ppm
Ma	1.5ppm
Cr	15.0ppm
Al	700.0ppm
Va	10.0ppm
Fe	800.0ppm
Pb	<10.0ppm

Hence, the majority of the solid products may be registered or reregistered under one label declaring 65% calcium hypochlorite and conforming to the following formulation.

Active Ingredient	Lower Limit	Upper Limit
Calcium Hypochlorite	65%	70.0%
Inert Ingredients		
Sodium Chloride		23.0%
Calcium Hydroxide		7.0%
Calcium Chlorate		4.0%
Calcium Chloride		4.0%
Calcium Carbonate		2.5%
Water		10.0%
Fe		0.25%
Mg		0.25%
Si		0.25%
Anticipated Assay		Max
Ti		20.0ppm
Cu		2.0ppm
Co		1.5ppm
Ni		2.5ppm
Pb		10.0ppm
Mn		10.0ppm
Mo		1.5ppm
Cr		10.0ppm
Al		250.0ppm
Va		10.0ppm
Arsenic, Mercury, Cadmium		<10.0ppm

However, tablets may also contain binders or mold release agents constituting up to 2% of the total weight and consisting of substances which are generally recognized as safe under 21 CFR Part 186.

Registrants whose products deviate from the specifications cited above may not use the general registration procedure. These registrants must register or reregister their products in accordance with the conventional registration procedures and provide whatever data is required as specified in Chapters II and/or III of this document.

2. Acute Toxicity Limits

a. Toxicity Category I Products

Products labeled for Toxicity Category I, based on eye irritation potential, will be acceptable under a general registration certification.

b. Other Products

The Agency recognizes that there may be a few products which fall in Toxicity Category II, III, or IV based on data developed with the particular products in question. Additionally many products have been registered in the past which meet the formula specifications described in this standard, but which were nevertheless registered with precautionary labeling other than Toxicity Category I, in the absence of any supporting acute toxicity data, or with data that do not meet current requirements.

Based on the information reviewed to date, the Agency has determined that products which claim lesser eye irritation potential must be judged individually, using data developed for the actual formulated products. All applicants currently claiming an eye irritation potential other than that designated in Toxicity Category I must either (1) change their labeling to the Category I labeling specified in Appendix IV-5, on page 90 of this standard and be subject to the provisions of this standard or (2) submit the data specified in the tables following Chapter III of this document and be considered for registration or reregistration under this standard on a product-by-product basis, in accordance with conventional registration procedures.

3. Use Patterns

Under this standard, the Agency will permit marketing of end-use products labeled for use as:

- sanitizers of surfaces (e.g., wooden butcher blocks, stainless steel tops, concrete floors, tile walls); or
- sanitizers of commercial and household laundry; or
- agents to wash or assist in lye peeling of fruits and vegetables (sodium hypochlorite only); or
- agents to help control microorganisms on mushrooms (pins), potatoes, sweet potatoes (postharvest), pimento and tomato seeds, pecans, fish fillets, refining sugar (calcium hypochlorite only); or
- agents to help control microorganisms on eggs for human consumption; or
- disinfectants of poultry drinking water; or
- disinfectants of human drinking water (emergency/public/individual), swimming pool water, hubbard/immersion tank water, spas/hot tub, hydrotherapy pools, human drinking water systems (e.g., water mains); or
- disinfectants of nonporous hard surfaces (e.g., tile, glass, stainless steel, fiberglass); or
- agents to help control microorganisms in sewage, wastewater, industrial and pulp and paper process water systems; or
- algicides/slimicides in cooling towers or evaporative condensers; or
- sanitizers of dialysis machines; or
- sanitizers of toilet bowls; or

- agents to help control algae and bacteria in fish and lobster ponds/tanks and conditioning oysters; or

- agents to help control slime on boat bottoms; or

- agents to sanitize and deodorize artificial sand beaches; or

- agents to kill scavenger fish in fish hatchery ponds.

Under this standard, the Agency will permit marketing of manufacturing-use only products labeled for formulation into end-use products for any of the above uses. A manufacturing-use products may not be marketed as an end-use product.

F. Required Labeling

All sodium or calcium hypochlorite products subject to this standard must bear appropriate labeling as specified in the general labeling requirements of Section 162.10 of 40 CFR. For more details on these requirements see Section IV and Appendix IV-1 of this standard. The following specific requirements apply to the products eligible for registration/reregistration under the general registration process.

Appendix IV-5 provides standard labels for all existing formulations of sodium or calcium hypochlorites as sole active ingredients. Applicants must customize the standard labels for registration number, establishment number, product name, type size, container disposal statement, and use directions as specified in this document.

Bulletins, leaflets, circulars, brochures, data sheets, flyers, and other graphic printed matter distributed in connection with the product are termed supplemental labeling. If supplemental use directions are contained in this material such labeling must be referenced on the product label and also must be consistent with this general standard.

Finally, applicants should note that while the standard specifies the statements that must appear on the label, it does not forbid the inclusion of nonpesticidally related text on the label. Applicants are only prohibited from placing any other pesticidally related language on the label without prior Agency review and approval (through the process of amending the standard - See Section V). If claims appear on the label as nonpesticidal claims and are found by the Agency to be pesticidally related, they are subject to the enforcement provisions of FIFRA. The inclusion of pesticidally related language on the label which has not been reviewed and approved by the Agency is a deviation from the stipulated language of the standard and may subject the registrant to the misbranding provisions of the FIFRA (section 12(a)(1)(E)). For the purposes of this section, pesticidally related language means all statements, designs, or graphic representations relative to the products' use as a pesticide. The term also applies to any statements, designs, or graphic representations concerning the safety of the product or its ingredients whether or not these claims are related to its pesticidal use.

1. EPA Registration Number

The registration number assigned to the pesticide product must appear on the label. The registration number must not appear in such a manner as to suggest or imply recommendation or endorsement of the product by the Agency.

The registration numbers assigned to products registered under this General Registration Standard will differ from those assigned to other registered products. The registration number usually consists of a unique company number followed by a unique product number. Under this General Registration Standard, the company number will still be a unique number, but the product number will be assigned to a particular standard label. Thus, all companies using the same standard label will have the same product number. Only the company number and establishment number will vary. For existing products, the registrant should refer to the current EPA Registration Number on any submissions until the product is reregistered and until the new registration number is assigned in accordance with the standard label to be used.

2. EPA Establishment Number

The EPA establishment number, preceded by the phrase "EPA Est." is the final establishment at which the product was produced, and may appear in any suitable location on the label or immediate container. It must also appear on the wrapper or outside container of the package if the EPA establishment number on the immediate container cannot be clearly read through such wrapper or container.

If the applicant does not have an EPA Establishment Number, he must obtain an establishment number by completing EPA Form No. 3540-8, "Establishment Registration Form" and sending this form to the appropriate EPA Regional Office. Refer to appendix V-1 for a list of EPA Regional Offices and their addresses.

3. Product Name

The top center panel of the standard labels is reserved for the product name. A product is misbranded if "it is an imitation of , or is offered for sale under the name of another pesticide" FIFRA 2(q)(1)(C). In this context, use of the word "chlorine" alone or in combination with other wording in the name or label text to describe products other than liquified chlorine gas is misbranding of a product and a violation of section 2(q)(1)(A) FIFRA, as amended, and section 162.10(a)(5)(vii) of the regulations. All labels with such wording must be corrected in accordance with the timetable for submission of labels specified in this standard.

The following examples are considered acceptable alternatives:

UNACCEPTABLE	ACCEPTABLE
Dry Chlorine	Dry Chlorinating (Chemical, Compound, or Product)
Liquid Chlorine	Liquid Chlorinating (Chemical, Compound, or Product)
Dry Granular Chlorine	Dry Granular Chlorinating (Chemical, Powder or Product)
Chlorine Tablets	Chlorinating Tablets

Any product failing to satisfy the above requirements within the timetables established in this standard (see Section V) will be considered misbranded and subject to enforcement proceedings.

4. Storage and Disposal Statements

All labels are required to bear storage and disposal statements. These statements are developed for specific containers, sizes, and chemical content. These instructions must be grouped and appear under the heading STORAGE AND DISPOSAL in the directions for use. This heading must be set in the same type size as required for the child hazard warning. Registrants should note that minor modifications of the following statements are permitted to tailor the statement to a particular type of container used by the manufacturer.

Manufacturers are required to use the storage and disposal statements of the standard labels in this standard for all solid and liquid products, except as specified below.

Manufacturing-Use Products

Manufacturers of hypochlorite manufacturing-use products who register under this standard must include the following statements on their labels, under the heading STORAGE AND DISPOSAL.

> Store this product in a cool dry area, away from direct sunlight and heat to avoid deterioration. In case of spill, flood areas with large quantities of water. Product or rinsates that cannot be used should be diluted with water before disposal in a sanitary sewer. Do not contaminate food or feed by storage, disposal or cleaning of equipment.
>
> Large metal containers should be rinsed thoroughly with water and returned to manufacturer for reconditioning or discarded in an approved landfill. Large storage containers should be thoroughly washed with water before reuse.

End-Use Products

The following statements are appropriate for all liquid end-use products containing sodium hypochlorite registered under this standard.

> Store this product in a cool dry area, away from direct sunlight and heat to avoid deterioration. In case of spill, flood areas with large quantities of water. Product or rinsates that cannot be used should be diluted with water before disposal in a sanitary sewer. Do not contaminate food or feed by storage, disposal or cleaning of equipment.

Manufacturers of liquid hypochlorite end-use products must include the following statements on their label, under the heading of STORAGE AND DISPOSAL. Modifications of this statement are permitted to tailor this statement to a particular type of container used by the manufacturer.

> Rinse empty container thoroughly with water and either return to manufacturer or discard by placing this container in trash collection or burying in an approved landfill.

5. Use Directions

The standard labels presented in Appendix IV-5 specify the full range of use directions currently accepted for the formulations described in this standard. Applicants may delete, but not not add, whole uses from these labels.

Applicants seeking to market products for new uses must apply for registration according to the procedures outlined in Section V. New uses cannot be incorporated into a label until notification that the change is acceptable and the standard has been amended by the Agency.

The standard labels represent the currently registered range of actual percentages of active ingredient. The ranges of active ingredient are specified in a list in Section I(D). The use directions in the directions of the standard labels are specific for 12.5% sodium hypochlorite and 65% calcium hypochlorite, the highest concentrations covered by this standard. To faciliate the conversion of these labels to the 10%, 9.2%, and the 5.25% concentrations of sodium hypochlorite also covered by this standard, a dilution conversion chart has been provided as part of Appendix IV-5. Registrants with products containing containing other percentages of active ingredients than those specified in this standard may apply for registration. If their products fall within the specification of this standard in all other respects, the Agency will register such products under this standard and amend the standard accordingly. If they do not otherwise meet these specifications, such products will be registered under the conventional registration procedures. Registrants with products containing different concentrations of A.I. must adjust the dosages in accordance with the following formula:

$$\text{OZ. OF PRODUCT} = \frac{\text{ppm avail. chlorine} \times \text{\# gal. water} \times 128\ \text{oz./gal.}}{\%\ \text{A.I.} \times 10{,}000}$$

$$\text{EXAMPLE:}\quad 128\ \text{oz.} = \frac{500 \times 100 \times 128}{5.00 \times 10{,}000}$$

G. Tolerance Reassessment Summary

An exemption from the requirement for a tolerance was established (40 CFR 180.1054) for residues of calcium hypochlorite which may occur in or on raw agricultural commodity potatoes resulting from the use of washing solutions containing calcium hypochlorite. After reexamining the exemption from the requirement for a tolerance, the Agency has determined that the exemption is still appropriate under current scientific standards.

Food processing plants, dairies, canneries, breweries, wineries, beverage bottling plants and eating establishments use hypochlorites for sanitizing premises and for disinfecting equipment and utensils. A incidental food additive regulation allowing the use of sodium or calcium hypochlorites as a terminal santizing rinse on food processing equipment has been established (21 CFR 178.1010). A food additive regulation permitting the use of sodium hypochlorites in washing or assisting in lye peeling of fruits and vegetables has been established (21 CFR 173.315) by the Food and Drug Administration (FDA).

The provisions of the Federal Food Drug and Cosmetic Act (FFDCA) (40 CFR Part 180 require the establishment of a tolerance for exemption from the need for a tolerance) for the use of calcium hypochlorite on mushroom pins (preharvest), sweet potatoes (postharvest), pimento seeds, tomato seeds, pecans (postharvest), fish fillets. EPA plans to propose to issue an exemption from the requirements of a tolerance for these uses.

The provisions of the Federal Food Drug and Cosmetic Act (21 CFR 173 Subpart D - Specific Usage Additives) require the establishment of a food additive regulation for calcium hypochlorite in sugar syrup and raw sugar. Applicants whose product labeling contains such uses must either obtain a food additive regulation for the uses from the Food and Drug Administration within 12 months from the date of issuance of this standard or delete the claims from the labeling.

for each major formulation category (e.g., emulsifiable concentrates, wettable powders, granulars, etc.) These are classified as generic data and when needed are specified in Table A. EPA may possess data on certain "typical formulations" but not others. Note: "Typical formulation" data should not be confused with product-specific data (Table B) which are required on each formulation. Product-specific data are further explained in Chapter III of this document.

C. Options Available for Complying With Requirements to Submit Data

Within 90 days of your receipt of this Notice you must submit to EPA a completed copy of the form entitled "FIFRA Section 3(c)(2)(B) Summary Sheet" [EPA Form 8580-1, Appendix II-3] for each of your products. On that form you must state which of the following methods you will use to comply with the requirements of this Notice:

1. (a) Notify EPA that you will submit the data, and

(b) either submit the existing data you believe will satisfy the requirement, or state that you will generate the data by conducting testing. If the test procedures you will use deviate from (or are not specified in) the Pesticide Assessment Guidelines or protocols contained in the Reports of Expert Groups to the Chemicals Group, Organization for Economic Cooperation and Development (OECD) Chemicals Testing Programme, you must enclose the protocols you will use.

OR

2. Notify EPA that you have entered into an agreement with one or more other registrants to jointly develop (or share in the cost of developing) the data. If you elect this option, you must notify EPA which registrant(s) are parties to the agreement.

OR

3. File with EPA a completed "Certification of Attempt to Enter Into an Agreement With Other Registrants for Development of Data" (EPA Form 8580-6, Appendix II-4)*/

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*/ FIFRA sec. 3(c)(2)(B) authorizes joint development of data by two or more registrants, and provides a mechanism by which parties can obtain an arbitrator's decision if they agree to jointly develop data but fail to agree on all the terms of the agreement. The statute does not compel any registrant to agree to develop data jointly.

(Footnote continued on next page)

II. REQUIREMENT FOR SUBMISSION OF GENERIC DATA

A. As stated in Section I, Regulatory Assessment, products which are eligible for general registration are not required to submit generic data. This section applies only to those applicants who wish to develop their own supporting data rather than rely upon and offer to pay compensation for the data cited in this standard.

The Agency has determined that the generic data described in Table A must be submitted to EPA for evaluation in order to maintain the registration(s) of your product(s).

EPA may suspend the registration of each of those products unless, within the specified time, you have informed EPA how you will satisfy these requirements. Any such suspension will remain in effect until you have complied with the terms of this Notice.

B. What Generic Dat 1/ Must be Submitted. You may determine which generic data you must submit by consulting Table A at the end of this chapter. That table lists the generic data needed to evaluate the continued registrability of all products, and the dates by which the data must be submitted. The required studies must be conducted in accordance with EPA approved protocols (such as those contained in the Pesticide Assessment Guidelines 2/ or data collected under the approved protocols of the Organization for Economic Cooperation and Development (OECD). If you do not wish to develop data in support of certain uses appearing in your labeling, you may delete those uses at the time you submit your revised labeling.

For certain kinds of testing (generally ecological effects), EPA requires the test substance to be a "typical formulation," and in those cases EPA needs data of that type

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1/ Generic data pertain to the properties or effects of a particular ingredient, and thus are relevant to an evaluation of the risks of all products containing that ingredient, regardless of the product's unique composition or specific use. Product-specific data relate only to the properties or effects of a product with a particular composition (or a group of products with closely similar composition).

2/ The Pesticide Assessment Guidelines are available in hard copy or microfiche from the National Technical Information Service, 5285 Port Royal Road, Springfield, Va. 22161.

OR

4. Request that EPA amend your registration by deleting the uses for which the data are needed. (This option is not available to applicants for new products.)

OR

5. Request voluntary cancellation of the registration(s) of your products for which the data are needed. (This option is not available to applicants for new products.)

D. Procedures for Requesting Changes in Testing Methodology and Extensions of Time

EPA recognizes that you may disagree with our conclusions regarding the appropriate ways to develop the required data or how quickly the data must be submitted. If the test procedures you plan to use deviate from (or are not specified in) the registration guidelines or protocols contained in the reports of the Expert Groups to the Chemical Groups, Organization for Economic Cooperation and Development (OECD) Chemicals Testing Programme, you must submit the protocol for Agency review and acceptance prior to the initiation of the test.

If you think that you will need more time to generate the required data, you must submit a written time extention request to the Office of Compliance Monitoring. The extention request should state the reasons why you believe that an extention is to meet the deadline for submitting the required data.

(Footnote continued from previous page)
In EPA's opinion, joint data development by all registrants subject to a data requirement or a cost-sharing agreement among all such registrants is clearly in the public interest. Duplication of testing could increase costs, tie up testing facilities, and subject an unnecessarily large number of animals to testing.

As noted earlier, EPA has discretion to suspend the registration of a product when a registrant fails to submit data required under FIFRA Section 3(c)(2)(B). EPA has concluded that it should encourage joint testing rather than duplicative testing, and that suspension should be withheld in certain cases. to further this goal. Accordingly, if (1) a registrant has informed us of his intent to develop and submit data required by this Notice; and (2) a second registrant informs EPA that it has made a bona fide offer to the first registrant to share in the expenses of the testing [on terms to be agreed upon or determined by arbitration under FIFRA Section 3(c)(2)(B)(iii)]; and (3) the first registrant has declined to agree to enter into a cost-sharing agreement, EPA will not suspend the second firm's registration.

TABLE A
DATA REQUIREMENTS FOR SODIUM AND CALCIUM HYPOCHLORITE SALTS

Guideline Citation and Name of Test	Test 2/ Substance	Guidelines Status	Are Data Required 3/ Yes	No	Footnote Number	Data Must Be Submitted Within Time Frames Listed Below 1/
§158.120 Product Chemistry						
Product Identity:						
61-1 - Identity of Ingredients	TGAI	R	☒	☐		6 Months
61-2 - Description of Beginning Materials and Manufacturing Process	TGAI	R	☒	☐		6 Months
61-3 - Discussion of Formation of Impurities	TGAI	R	☒	☐		6 Months
Analysis and Certification of Product Ingredients						
62-1 - Preliminary Analysis	TGAI	R	☒	☐		12 Months
62-2 - Certification of Limits	TGAI	R	☒	☐		12 Months
62-3 - Analytical Methods to Verify Certified Limits	TGAI	R	☒	☐		12 Months
Physical and Chemical Characteristics						
63-2 - Color	TGAI	R	☒	☐		6 Months
63-3 - Physical State	TGAI	R	☒	☐		6 Months
63-4 - Odor	TGAI	R	☒	☐		6 Months
63-5 - Melting Point	TGAI	R	☒	☐		6 Months
63-6 - Boiling Point	TGAI	R	☒	☐		6 Months

TABLE A
DATA REQUIREMENTS FOR SODIUM AND CALCIUM HYPOCHLORITE SALTS

uideline Citation and ame of Test	Test 2/ Substance	Guidelines Status	Are Data Required 3/ Yes	Are Data Required 3/ No	Footnote Number	Data must Be Submitted Within Time Frames Listed Below 1/
158.120 Product Chemistry (Continued)						
hysical and Chemical Characteristics (Continued)						
63-7 - Density, Bulk Density, or Specific Gravity	TGAI	R	☒	☐		6 Months
63-8 - Solubility	TGAI or PAI	R	☒	☐		6 Months
63-9 - Vapor Pressure	PAI	R	☒	☐		6 Months
63-10 - Dissociation constant	PAI	R	☒	☐		6 Months
63-11 - Octanol/water partition coefficient	PAI	R	☐	☒		
63-12 - pH	TGAI	R	☒	☐		6 Months
63-13 - Stability	TGAI	R	☒	☐		6 Months

: :

TGAI = Technical Grade of the Active Ingredient; PAI = Pure Active Ingredient; R = Required; CR = Conditionally Required

1/ Data must be submitted within the indicated time frame, based on the date of the Guidance Document.

- 6 Month Due Date is October 1, 1986.
- 12 Month Due Date is April 1, 1987.

2/ The test substance for sodium hypochlorite is 12.5 % active which is the highest concentration permissable by law and above which the product degrades rapidly, and the test substance for calcium hypochlorite is 65.0% active produced by an integrated formulation system with no intentionally added inerts.

3/ These requirements apply only to those applicants who wish to develop their own supporting data rather than rely upon and offer to pay compensation for the data cited in this standard.

TABLE A
GENERIC DATA REQUIREMENTS FOR SODIUM AND CALCIUM HYPOCHLORITE SALTS

Data Requirement	Composition 1/4/	Use 2/ Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation 5/	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission 3/	
§158.135 Toxicology						
ACUTE TESTING:						
81-1 - Acute Oral Toxicity - Rat	TGAI	D,I	Yes		Yes7/	9 Months
81-2 - Acute Dermal Toxicity - Rabbit	TGAI	D,I	Yes		Yes7/	9 Months
81-3 - Acute Inhalation Toxicity - Rat	TGAI	D,I	Yes		Yes6/7/	9 Months
81-7 - Delayed Neurotoxicity - Hen	TGAI	D,I	No		No8/	
SUBCHRONIC TESTING:						
82-1 - 90-Day Feeding :	TGAI	D,I	No			
- Rodent, and					No9/	
- Non-rodent (Dog)					No9/	
82-2 - 21-Day Dermal - Rabbit	TGAI	D,I	No		No9/	
82-3 - 90-Day Dermal - Rabbit	TGAI	D,I	No		No9/	
82-4 - 90-Day Inhalation:	TGAI	D,I	No			
- Rat					No10/	
82-5 - 90-Day Neurotoxicity:	TGAI	D,I	No			
- Hen					No8/	
-Mammal					No8/	

TABLE A
GENERIC DATA REQUIREMENTS FOR SODIUM AND CALCIUM HYPOCHLORITE SALTS

ta Requirement	Composition 1/4/	Use Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation 5/	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission 3/
58.135 Toxicology - Continued					
CHRONIC TESTING:					
83-1 - Chronic Toxicity - 2 species:	TGAI	D,I	No		
- Rodent, and					No9/
- Non-rodent (Dog)					No9/
83-2 - Oncogenicity - 2 species:	TGAI	D,I	No		
- Rat (preferred), and					No9/
- Mouse (preferred)					No9/
83-3 - Teratogenicity - 2 species:	TGAI	D,I	No		
- Rat					No9/
- Rabbit					No9/
83-4 - Reproduction - Rat 2-generation	TGAI	D,I	No		No9/
MUTAGENICITY TESTING					
84-2 - Gene Mutation	TGAI	D,I	No		No9/
84-2 - Structural Chromosomal Aberration	TGAI	D,I	No		No9/
84-4 - Other Genotoxic Effects	TGAI	D,I	No		No9/

TABLE A
GENERIC DATA REQUIREMENTS FOR SODIUM AND CALCIUM HYPOCHLORITE SALTS

Data Requirement	Composition 1/4/	Use Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation 5/	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission 3/
§158.135 Toxicology - Continued					
SPECIAL TESTING					
85-1 - General Metabolism	PAI or PAIRA	D,I	No		No9/
85-2 - Dermal Penetration	Choice	D,I	No		No9/
86-1 - Domestic Animal Safety	Choice	D,I	No		No11/

: :

1/ Composition: PAI = Pure active ingredient; PAIRA = Pure active ingredient, radiolabelled; Choice = Choice of several test substances determined on a case-by-case basis.

2/ The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food; C=Aqautic, Food Crop; D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.

3/ Data must be submitted within the indicated time frame, based on the date of the Guidance Document.
° 9 Month Due Date is January 1, 1987.

4/ The test substance for sodium hypochlorite is 12.5% active which is the highest concentration permissable by law and above which the product degrades rapidly, and the test substance for calcium hypochlorite is 65.0% active produced by an integrated formulation system with no intentionally added inerts.

5/ For a list of the data citations used in support of general registration see pages 38-40.

6/ Required for solid hypochlorite products only.

7/ These requirements apply only to those applicants who wish to develop their own suporting data rather than rely upon and offer to pay compensation for the data cited in this standard.

8/ Sodium and calcium hypochlorite are not organophosphorus compounds nor do they produce cholinesterase inhibition.

9/ This requirement has been waived. See Regulatory Position and Rationale pages 5-8.

10/ The registered uses will not result in repeated inhalation exposure at a concentration likely to be toxic.

11/ Based on the registered paterns of use, this data is not required under 40 CFR Part 158.

TABLE A
GENERIC DATA REQUIREMENTS FOR SODIUM AND CALCIUM HYPOCHLORITE SALTS

ata Requirement	Composition 1/4/	Use 2/ Pattern	Does EPA Have Data To Satisfy This Require- ment? (Yes, No or Partially)	Bibliographic Citation 5/	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission 3/	
158.145 Wildlife and Aquatic Organisms						
AVIAN AND MAMMALIAN TESTING						
71-1 - Acute Avian Oral Toxicity	TGAI	D,I	Yes		Yes6/	9 Months
71-2 - Avian Subacute Dietary Toxicity	TGAI	D,I	Yes		Yes6/	9 Months
71-3 - Wild Mammal Toxicity	TGAI	D,I	No		No7/	
71-4 - Avian Reproduction	TGAI	D,I	No			
- Upland Game Bird, and					No7/	
- Waterfowl					No7/	
71-5 - Simulated Field Testing	TEP	D,I	No			
- Mammals, and					No7/	
- Birds					No7/	
- Actual Field Testing	TEP	D,I	No			
- Mammals, and					No7/	
- Birds					No7/	

TABLE A
GENERIC DATA REQUIREMENTS FOR SODIUM AND CALCIUM HYPOCHLORITE SALTS

Data Requirement	Composition 1/4/	Use Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation 5/	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission 3/	
§158.145 Wildlife and Aquatic Organisms - Continued						
AQUATIC ORGANISM TESTING						
72-1 - Freshwater Fish Toxicity	TGAI	D,I	Yes	GS029026		
- Coldwater Fish Species, and					Yes6/	9 Months
- Warmwater Fish Species					Yes6/	9 Months
72-2 - Acute Toxicity to Freshwater Invertebrates	TGAI	D,I	Yes	GS029026	Yes6/	9 Months
72-3 - Acute Toxicity to Estuarine and Marine Organisms	TGAI	D,I	Yes	GS029026		
- Fish					No	
- Mollusk					No	
- Shrimp					No	
72-4 - Fish Early Life Stage, and	TGAI	D,I	Yes	GS029026	No	
- Aquatic Invertebrate Life-Cycle					No	
72-5 - Fish - Life-Cycle	TGAI	D,I	Yes	GS029026	No	

TABLE A
GENERIC DATA REQUIREMENTS FOR SODIUM AND CALCIUM HYPOCHLORITE SALTS

ata Requirement	Composition 1/4/	Use Pattern 2/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation 5/	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission 3/
158.145 Wildlife and quatic Organisms - Continued					
72-6 - Aquatic Organism Accumulation	TGAI, PAI OR Degradation Product	D,I	No		
- Crustacean					No7/
- Fish					No7/
- Insect Nymph					No7/
- Mollusk					No7/
72-7 - Simulated Field Testing - Aquatic Organisms	TEP	D,I	Yes	GS029026	No
- Actual Field Testing -Aquatic Organisms					No

: :

1/ Composition: TGAI = Technical grade of the active ingredient; PAI = pure active ingredient; TEP = Typical end-use product;

2/ The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food Crop; C=Aquatic, Food Crop; D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.

3/ Data must be submitted within the indicated time frame, based on the date of the Guidance Document.
° 9 Month Due Date is January 1, 1987.

4/ The test substance for sodium hypochlorite is 12.5% active which is the highest concentration permissable by law and above which the product dagrades rapidly, and the test substance for calcium hypochlorite is 65% active produced by an integrated formulation system with no intentionally added inerts.

5/ For a list of the data citations used in support of general registration see pages 38-40.

6/ These requirements apply only to those applicants who wish to develop their own supporting data rather than rely upon and offer to pay compensation for the data cited in this standard.

7/ Based on the registered patterns of use, this data is not required under 40 CFR Part 158.

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING SODIUM AND CALCIUM HYPOCHLORITE SALTS

Guideline Citation and Name of Test	Test Substance	Guidelines Status	Are Data Required 5/		Footnote Number	Data Must Be Submitted Within Time Frames Listed Below 1/
			Yes	No		
§158.120 Product Chemistry						
Product Identity:						
61-1 - Product Identity and Disclosure of Ingredients	MP	R	☒	☐		6 Months
61-2 - Description of Beginning Materials and Manufacturing Process	MP	R	☒	☐		6 Months
61-3 - Discussion of Formation of Impurities	MP	R	☒	☐		6 Months
Analysis and Certification of Product Ingredients						
62-1 - Preliminary Analysis	MP	R	☒	☐	2	12 Months
62-2 - Certification of Limits	MP	R	☒	☐		6 Months
62-3 - Analytical Methods to Verify Certified Limit	MP	R	☐	☒		
Physical and Chemical Characteristics						
63-2 - Color	MP	R	☒	☐		6 Months
63-3 - Physical State	MP	R	☒	☐		6 Months
63-4 - Odor	MP	R	☒	☐		6 Months

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TABLE B

PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING SODIUM AND CALCIUM HYPOCHLODITE SALTS

Guideline Citation and Name of Test	Test Substance	Guidelines Status	Are Data Required 5/ Yes	No	Footnote Number	Data Must Be Submitted Within Time Frames Listed Below 1/
§158.120 Product Chemistry (Continued)						
Physical and Chemical Characteristics (Continued)						
63-7 - Density, Bulk Density, or Specific Gravity	MP	R	[X]	[ ]		6 Months
63-12 - pH	MP	CR	[X]	[ ]		6 Months
63-14 - Oxidizing or Reducing Action	MP	CR	[X]	[ ]		6 Months
63-15 - Flammability	MP	CR	[ ]	[X]		
63-16 - Explodability	MP	R	[X]	[ ]	3	6 Months
63-17 - Storage Stability	MP	R	[X]	[ ]		6 Months
63-18 - Viscosity	MP	CR	[X]	[ ]	4	6 Months
63-19 - Miscibility	MP	CR	[ ]	[X]		
63-20 - Corrosion Characteristics	MP	R	[X]	[ ]		6 Months

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MP = Manufacturing-use Product; R = Required; CR = Conditionally Required

1/ Data must be submitted within the indicated time frame, based on the date of the Guidance Document.
- 6 Month Due Date is October 1, 1986.
- 12 Month Due Date is April 1, 1987.

2/ For liquid hypochlorite products, a titration analysis for available chlorine on two samples is required.

3/ For solid hypochlorite products.

4/ For liquid hypochlorite products.

5/ These requirements apply only to those applicants who wish to develop their own supporting data rather than rely upon and offer to pay compensation for the data cited in this standard.

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING SODIUM AND CALCIUM HYPOCHLORITE SALTS

Data Requirement	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation 3/	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission 2/	
§158.135 Toxicology					
ACUTE TESTING					
81-1 - Acute Oral Toxicity - Rat	MP	Yes		Yes5/	9 Months
81-2 - Acute Dermal Toxicity - Rabbit	MP	Yes		Yes5/	9 Months
81-3 - Acute Inhalation Toxicity - Rat	MP	Yes		Yes4/5/	9 Months
81-4 - Primary Eye Irritation - Rabbit	MP	Yes		Yes5/	9 Months
81-5 - Primary Dermal Irritation - Rabbit	MP	Yes		Yes5/	9 Months
81-6 - Dermal Sensitization - Guinea Pig	MP	No		No6/	

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1/ Composition: MP = Manufacturing-use product.

2/ Data must be submitted within the indicated time frame, based on the date of the Guidance Document.
° 9 Month Due Date is January 1, 1987.

3/ For a list of the data citations used in support of general registration see pages 38-40.

4/ Required for solid hypochlorite products only.

5/ These requirements apply only to those applicants who wish to develop their own supporting data rather than rely upon and offer to pay compensation for the data cited in this standard.

6/ This requirement has been waived. See Regulatory Position and Rationale pages 5-8.

TABLE C
PRODUCT SPECIFIC DATA REQUIREMENTS FOR END-USE PRODUCTS CONTAINING SODIUM AND CALCIUM HYPOCHLORITE SALTS

Guideline Citation and Name of Test	Test Substance	Guidelines Status	Are Data Required 3/ Yes	No	Footnote Number	Data Must Be Submitted Within Time Frames Listed Below 1/
§158.120 Product Chemistry						
Product Identity:						
61-1 - Product Identity and Disclosure of Ingredients	EP	R	☐	☒		
61-2 - Description of Beginning Materials and Manufacturing Process	EP	R	☐	☒		
61-3 - Discussion of Formation of Impurities	EP	R	☐	☒		
Analysis and Certification of Product Ingredients						
62-1 - Preliminary Analysis	EP	R	☒	☐	2	12 Months
62-2 - Certification of Limits	EP	R	☐	☒		
62-3 - Analytical Methods to Verify Certified Limit	EP	R	☐	☒		
Physical and Chemical Characteristics						
63-2 - Color	EP	R	☐	☒		
63-3 - Physical State	EP	R	☐	☒		
63-4 - Odor	EP	R	☐	☒		

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TABLE C
PRODUCT SPECIFIC DATA REQUIREMENTS FOR END-USE PRODUCTS CONTAINING SODIUM AND CALCIUM HYPOCHLORITE SALTS

Guideline Citation and Name of Test	Test Substance	Guidelines Status	Are Data Required 3/		Footnote Number	Data Must Be Submitted Within Time Frames Listed Below 1/
			Yes	No		
§158.120 Product Chemistry (Continued)						
Physical and Chemical Characteristics (Continued)						
63-7 - Density, Bulk Density, or Specific Gravity	EP	R	☒	☐		6 Months
63-12 - pH	EP	CR	☒	☐		6 Months
63-14 - Oxidizing or Reducing Action	EP	CR	☐	☒		
63-15 - Flammability	EP	CR	☐	☒		
63-16 - Explodability	EP	R	☐	☒		
63-17 - Storage Stability	EP	R	☐	☒		
63-18 - Viscosity	EP	CR	☐	☒		
63-19 - Miscibility	EP	CR	☐	☒		
63-20 - Corrosion Characteristics	EP	R	☒	☐		6 Months

EP = End-Use Product; R = Required; CR = Conditionally Required

1/ Data must be submitted within the indicated time frame, based on the date of the Guidance Document.
- 6 Month Due Date is October 1, 1986.
- 12 Month Due Date is April 1, 1987.

2/ For liquid hypochlorite products, a titration analysis for available chlorine on two samples is required.

3/ These requirements apply only to those applicants who wish to develop their own supporting data rather than rely upon and offer to pay compensation for the data cited in this standard.

TABLE C

PRODUCT SPECIFIC DATA REQUIREMENTS FOR END-USE PRODUCTS CONTAINING SODIUM AND CALCIUM HYPOCHLORITE SALTS

ata Requirement	Composition 1/	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation 3/	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission 2/	
158.135 Toxicology					
ACUTE TESTING					
81-1 - Acute Oral Toxicity - Rat	EP	Yes		Yes5/	9 Months
81-2 - Acute Dermal Toxicity - Rabbit	EP	Yes		Yes5/	9 Months
81-3 - Acute Inhalation Toxicity - Rat	EP	Yes		Yes4/5/	9 Months
81-4 - Primary Eye Irritation - Rabbit	EP	Yes		Yes5/	9 Months
81-5 - Primary Dermal Irritation - Rabbit	EP	Yes		Yes5/	9 Months
81-6 - Dermal Sensitization - Guinea Pig	EP	No		No6/	

: :

1/ Composition: EP = End-Use Product.

2/ Data must be submitted within the indicated time frame, based on the date of the Guidance Document.
° 9 Month Due Date is January 1, 1987.

3/ For a list of the data citations used in support of general registration see pages 38-40.

4/ Required for solid hypochlorite products only.

5/ These requirements apply only to those applicants who wish to develop their own supporting data rather than rely upon and offer to pay compensation for the data cited in this standard.

6/ This requirement has been waived. See Regulatory Position and Rationale pages 5-8.

Sodium Hypochlorite Data Citations*/

Data Source	Test Category	MRID	Author
Jones Chemical Company Caledonia, N.Y. 14423	Acute oral and dermal	000007374	Baker, 1976
	Eye and skin irritation	000007374	Baker, 1976
	Acute oral and dermal	000007369	Paa, 1977
	Eye and skin irritation	000007369	Paa, 1977
Allied Chlorine and Chemical Products, Inc Miami, Florida	Acute oral and dermal	000007285	Paa, 1977
	Acute dermal	000007285	Paa, 1977
Kuehne Chemical Co. Linden, N.J. 07036	Acute Oral	000007274	Warf, 1977
	Acute dermal	000007277	Warf, 1977
	Skin and eye irritation	000007274	Warf, 1977
	Quail dietary LC_{50}	000007275	Beavers, 1978
	Duck dietary LC_{50}	000007278	Beavers, 1978
	Quail acute oral LD_{50}	000007276	Beavers, 1978
	Bluegill LC_{50}	000008190	Calmbacher, 1978
	Trout LC_{50}	000008191	Calmbacher, 1978
	Daphnia LC_{50}	000007279	Morrissey, 1978

Sodium Hypochlorite Data Citations*/ (continued)

Data Source	Test Category	MRID	Author
The Chlorine Institute New York, N.Y. 10173	Acute oral	000007399	Babish, 1978
	Acute oral	000007397	Babish, 1978
	Acute dermal	000007398	Babish, 1978
	Skin irritation	000008203	Babish, 1978
	Skin irritation	000008205	Babish, 1978
	Eye irritation	000008204	Babish, 1978
	Eye irritation	000008206	Babish, 1978
	Quail dietary LC_{50}	000007405	Beavers & Brown, 1978
	Duck dietary LC_{50}	000007404	Beavers et al., 1978
	Quail acute oral LD_{50}	000007403	Beavers et al., 1978
	Bluegill LC_{50}	000007401	Buccafusco et al., 1978
	Trout LC_{50}	000007400	Stiefel et al., 1978
	Daphnia LC_{50}	000007402	LeBlanc and Surprenant, 1978
Sinclair Mnfng. Comp. Carson, Calif.	Skin and eye irritation	000007221	Latven, 1976
Surpass Chemical Co. New York	Acute oral and dermal	000020072	Drube, 1978
	Skin and eye irritation	000020072	Drube, 1978
Folino Industries Winooski, Vt. 05404	Acute oral and dermal	000007540	N. England Testing, 1977
	Skin and eye irritation	000007540	N. England Testing, 1977
FMC Corporation Philadelphia, PA.	Daphnia LC_{50}	000019313	Leblanc, 1977

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*/ These data need not be cited by applicants who certify that they are eligible for the formulators' exemption.

Calcium Hypochlorite Data Citations*/

Data Source	.Test Category	MRID	Author
Olin Corporation Stamford, Conn. 06904	Acute inhalation	000007560	Lavenhar & Palanker, 1975
	Acute oral and dermal	000007381	Palanker, 1975
	Acute oral and inhalation	000007580	Goldhammer, 1973
	Skin and eye irritation	000007580	Goldhammer, 1973
	Skin and eye irritation	000007381	Palanker, 1975
	Skin irritation	000008202	Baker, 1974
	Quail acute oral LD_{50}	000007496	Beavers, 1976
	Trout LC_{50}	000007495	Buccafusco & LeBlanc, 1977
	Daphnia LC_{50}	000007495	Buccafusco & LeBlanc, 1977
Pennwalt Chemical Corp.	Skin and eye irritation	000007248	Latven, 1976
	Eye irritation	000007249	Latven, 1976

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*/ These data need not be cited by applicants who certify that they are eligible for the formulators' exemption.

III. REQUIREMENT FOR SUBMISSION OF PRODUCT-SPECIFIC DATA

Note: As stated in Section I, Regulatory Assessment, products which are eligible for general registration are not required to submit product specific data. This section applies only to those aplicants who wish to develop their own supporting data rather than rely upon and offer to pay compensation for the data cited in the standard and to those applicants who wish to propose a lower toxicity category of II, III, or IV for their products.

A necessary first step in determining which statements must appear on your product's label is the completion and submission to EPA of product-specific data* listed on the form entitled "Product Specific Data Report" (EPA Form 8580-4, Appendix III-1) to fill gaps identified by EPA concerning your product. Under the authority of FIFRA sec. 3(c)(2)(B), EPA has determined that you must submit these data to EPA in order to reregister your product(s). All of these data must be submitted in accordance with the time frames specified in the data tables.

Table B, Product Specific Data Requirements for Manufacturing-Use Products, and Table C, Product Specific Data Requirements for End-Use Products, list the product specific data you must submit. Data that are required to be submitted are identified in the column of those tables entitled "Must Data Be Submitted Under §3(c)(2)(B)."

IV. SUBMISSION OF REVISED LABELING

Note: This section applies both to manufacturing-use and end-use products to the extent described in Section I, Regulatory Assessment.

FIFRA requires each product to be labeled with accurate, complete and sufficient instructions and precautions, reflecting the results of data concerning the product and its ingredients. Labeling requirements are set out in 40 CFR 162.10 (see Appendix IV-1) and are summarized for products containing this active ingredient as part of this Guidance Document (See Appendix IV-2). Applications submitted in response to this notice must include draft labeling for Agency review.

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*/ Product specific data pertain to data that support the formulation which is marketed; it usually includes product chemistry data and acute toxicity data.

If you fail to submit revised labeling information complying with this section (supplemented by requirements described in Section I, Regulatory Position and Rationale), EPA may issue a notice of intent to cancel the registration under FIFRA sec. 6(b)(1).

A. Label Contents

40 CFR 162.10 requires that certain specific labeling statements appear at certain locations on the label. This is referred to as format labeling. Specific label items listed below are keyed to Appendix IV-2.

Item 1. PRODUCT NAME - The name, brand or trademark is required to be located on the front panel, preferably centered in the upper part of the panel. The name of a product will not be accepted if it is false or misleading.

Item 2. COMPANY NAME AND ADDRESS - The name and address of the registrant or distributor is required on the label. The name and address should preferably be located at the bottom of the front panel or at the end of the label text.

Item 3. NET CONTENTS - A net contents statement is required on all labels or on the container of the pesticide. The preferred location is the bottom of the front panel immediately above the company name and address, or at the end of the label text. The net contents must be expressed in the largest suitable unit, e.g., "1 pound 10 ounces" rather than "26 ounces." In addition to English units, net contents may be expressed in metric units. See Appendix IV-1. [40 CFR 162.10(d)]

Item 4. EPA REGISTRATION NUMBER - The registration number assigned to the pesticide product must appear on the label, preceded by the phrase "EPA Registration No.," or "EPA Reg. No." The registration number must be set in type of a size and style similar to other print on that part of the label on which it appears and must run parallel to it. The registration number and the required identifying phrase must not appear in such a manner as to suggest or imply recommendation or endorsement of the product by the Agency. See Appendix IV-1. [40 CFR 162.10(e)]

Item 5. EPA ESTABLISHMENT NUMBER - The EPA establishment number, preceded by the phrase "EPA Est." is the final establishment at which the product was produced, and may appear in any suitable location on the label or immediate container. It must also appear on the wrapper or outside container of the package if the EPA establishment number on the immediate container cannot be clearly read through such wrapper or container. See Appendix IV-1. [40 CFR 162.10(f)]

Item 6. INGREDIENTS STATEMENT - An ingredients statement is required on the front panel. The ingredients statement must contain the name and percentage by weight of each active ingredient and the total percentage by weight of all inert ingredients. The preferred location is immediately below the product name. The ingredients statement must run parallel with, and be clearly distinguished from, other text on the panel. It must not be placed in the body of other text. See Appendix IV-1. [40 CFR 162.10(g)]

Item 6A. POUNDS PER GALLON STATEMENT - For liquid agricultural formulations, the pounds per gallon of active ingredient must be indicated on the label.

Item 7. FRONT LABEL PRECAUTIONARY STATEMENTS - Front panel precautionary statements must be grouped together, preferably within a block outline. The table below shows the minimum type size requirements for various size labels.

Size of Label on Front Panel in Square Inches	Signal Word Minimum Type Size All Capitals	"Keep Out of Reach of Children" Minimum Type Size
5 and under	6 point	6 point
above 5 to 10	10 point	6 point
above 10 to 15	12 point	8 point
above 15 to 30	14 point	10 point
over 30	18 point	12 point

Item 7A. CHILD HAZARD WARNING STATEMENT - The statement "Keep Out of Reach of Children" must be located on the front panel above the signal word except where contact with children during distribution or use is unlikely. See Appendix IV-1. [40 CFR 162.10(h)(1)(ii)]

Item 7B. SIGNAL WORD - The signal word (DANGER, WARNING, or CAUTION) is required on the front panel immediately below the child hazard warning statement. See Appendix IV-1. [40 CFR 162.10 (h)(1)(i)]

Item 7C. SKULL & CROSSBONES AND WORD "POISON" - On products assigned a toxicity Category I on the basis of oral, dermal, or inhalation toxicity, the word "Poison" shall appear on the label in red on a background of distinctly contrasting color and the skull and crossbones shall appear in immediate proximity to the word POISON. See Appendix IV-1. [40 CFR 162.10(h)(1)(i)]

Item 7D. STATEMENT OF PRACTICAL TREATMENT - A statement of practical treatment (first aid or other) shall appear on the label of pesticide products in toxicity Categories I, II, and III. See Appendix IV-1. [40 CFR 162.10(h)(1)(iii)]

Item 7E. REFERRAL STATEMENT - The statement "See Side (or Back) Panel for Additional Precautionary Statements" is required on the front panel for all products, unless all required precautionary statements appear on the front panel. See Appendix IV-1. [40 CFR 162.10(h)(1)(iii)]

Item 8. SIDE/BACK PANEL PRECAUTIONARY LABELING - The precautionary statements listed below must appear together on the label under the heading "PRECAUTIONARY STATEMENTS." The preferred location is at the top of the side or back panel preceding the directions for use, and it is preferred that these statements be surrounded by a block outline. Each of the three hazard warning statements must be headed by the appropriate hazard title. See Appendix IV-1. [40 CFR 162.10 (h)(2)].

Item 8A. HAZARD TO HUMANS AND DOMESTIC ANIMALS - Where a hazard exists to humans or domestic animals, precautionary statements are required indicating the particular hazard, the route(s) of exposure and the precautions to be taken to avoid accident, injury or damage. See Appendix IV-1. [40 CFR 162.10 (h)(2)(i)]

Item 8B. ENVIRONMENTAL HAZARD - Where a hazard exists to non-target organisms excluding humans and domestic animals, precautionary statements are required stating the nature of the hazard and the appropriate precautions to avoid potential accident, injury, or damage. See Appendix IV-1. [40 CFR 162.10(h)(2)(ii)]

Item 8C. PHYSICAL OR CHEMICAL HAZARD

1. Flammability statement. Precautionary statements relating to flammability of a product are required to appear on the label if it meets the criteria in Appendix IV-3. The requirement is based on the results of the flashpoint determinations and flame extension tests required to be submitted for all products. These statements are to be located in the side/back panel precautionary statements section, preceded by the heading "Physical/Chemical Hazards." Note that no signal word is used in conjunction with the flammability statements.

2. Criteria for declaration of non-flammability. The following criteria will be used to determine if a product is non-flammable:

a. A "non-flammable gas" is a gas (or mixture of gases) that will not ignite when a lighted match is placed against the open cylinder valve.

b. A "non-flammable liquid" is one having a flashpoint greater than 350°F (177°C).

c. A "non-flammable aerosol" is one which meets the following criteria:

i. The flame extension is zero inches;

ii. There is no flashback; and

iii. The flashpoint of the non-volatile liquid component is greater than 350°F (177°C).

3. Declaration of non-flammability. Products which meet the criteria for non-flammability specified above may bear the notation "non-flammable" or "non-flammable (gas, liquid, etc.)" on the label. It may appear as a substatement to the ingredients statement, or on a back or side panel, but shall not be highlighted or emphasized (as with an inordinately large type size) in any way that may detract from precaution.

4. Other physical/chemical hazard statements. When chemistry data demonstrate hazards of a physical or chemical nature other than flammability, appropriate statements of hazard will be prescribed. Such statements may address hazards of explosivity, oxidizing or reducing capability, or mixing with other substances to produce toxic fumes.

Item 9. MISUSE STATEMENT - All products must bear the misuse statement, "It is a violation of Federal law to use this product in a manner inconsistent with its labeling." This statement appears at the beginning of the directions for use, directly beneath the heading of that section.

Item 10. REENTRY STATEMENT - If a reentry interval has been established by the Agency, it must be included on the label. Additional worker protection statements may be required in accordance with PR Notice 83-2, March 29, 1983.

Item 10A. STORAGE AND DISPOSAL BLOCK - All labels are required to bear storage and disposal statements. These statements are developed for specific containers, sizes, and chemical content. These instructions must be grouped and appear under the heading "Storage and Disposal" in the directions for use. This heading must be set in the same type sizes as required for the child hazard warning. Refer to Appendix IV-4 to determine the disposal instructions appropriate for your products.

Item 10B. DIRECTIONS FOR USE - Directions for use must be stated in terms which can be easily read and understood by the average person likely to use or to supervise the use of the pesticide. When followed, directions must be adequate to protect the public from fraud and from personal injury and to prevent unreasonable adverse effects on the environment. See Appendix IV-1. [40 CFR 162.10]

B. Supplemental Labeling

Bulletins, leaflets, circulars, brochures, data sheets, flyers, or other written or graphic printed matter which is referred to on the label or which is to accompany the product are termed supplemental labeling. Such labeling may not bear claims or representations that differ in substance from those accepted in connection with registration of the product. It should be made part of the response to this notice and submitted for review.

V. INSTRUCTIONS FOR SUBMISSION

A. THIS SECTION IS ONLY APPLICABLE TO APPLICANTS SEEKING TO REGISTER/REREGISTER SODIUM OR CALCIUM HYPOCHLORITE SOLE ACTIVE INGREDIENT PRODUCTS UNDER THE GENERAL REGISTRATION PROCESS.

A single general registration application provides a separate registration for each specific formulation type and includes all acceptable uses for each formulation, as specified in the master labels. Registrants may market under labels bearing all uses or selected uses without additional approval by the Agency.

1. Within 90 days from the receipt of this document, you must submit to the Product Manager in the Registration Division at the address given at the end of this section the following information for each different sodium and/or calcium hypochlorite product.

   a. Application for Pesticide Registration/Reregistration, EPA Form 8570-1.

   b. Confidential Statement of Formula, EPA Form 8570-4.

   c. The General Registration/Reregistration Certification Statement for sodium and/or calcium hypochlorite (Appendix I-A or Appendix I-B whichever is applicable). Note: Separate amendments must be submited for each product being registered or reregistered under the general registration standard.

Based on the findings in this standard, the applicant is granted a final general registration by the Agency under the provisions of FIFRA section 3(c)(5), upon notification by the Agency of the approval. This general registration permits a registrant to distribute, sell, offer for sale, hold for sale, ship, deliver for shipment, or receive and (having so received) deliver or offer to deliver any product in compliance with the general registration provisions of this standard.

Note: Even though the submission of revised labeling is not a requirement of general registration,the last date that products with non-revised labels may be released for shipment by the registrant and distributed by retailers or other persons is one year from the date of issuance of this standard.

If you do not comply with these conditions after the registrations are issued, the registrations will be subject to cancellation in accordance with FIFRA Section 6(b)(1).

B. THIS SECTION IS ONLY APPLICABLE TO APPLICANTS SEEKING TO REGISTER/REREGISTER SODIUM OR CALCIUM HYPOCHLORITE SOLE ACTIVE INGREDIENT PRODUCTS WHICH ARE ELIGIBLE FOR GENERAL REGISTRATION BUT FOR WHICH THE APPLICANT CHOOSES THE CONVENTIONAL REGISTRATION/REREGISTRATION PROCESS.

1. Within 90 days from the receipt of this document, you must submit to the Product Manager in the Registration Division at the address given at the end of this section the "FIFRA Section 3(c)(2)(B) Summary Sheet", EPA form 8570-1, with either a Formulator's Exemption Statement or a Certification with Respect to Citation of Data, whichever is appropriate. Refer to Appendix II-3.

2. Within 6 months from receipt of this document you must submit to the Product Manager on the Registration Division:

   a. Application for Pesticide Registration, EPA Form 8570-1.

   b. Confidential Statement of Formula, EPA Form 8570-4.

   c. Two copies of draft labeling, including the label and associated brochures. If current labeling conforms to the requirements of this guidance document you may submit such labeling. End use product labeling must comply specifically with the instructions in Section I (Regulatory Assessment) of this guidance document. The labeling should be either typewritten text on 8-1/2 x 11 inch paper or a mockup of the labeling suitable for storage in 8-1/2 x 11 inch files. The draft label must indicate the intended colors of the final label, clear indication of the front panel label, and the intended type sizes of the text.

C. THIS SECTION IS ONLY APPLICABLE TO APPLICANTS SEEKING TO REGISTER/REREGISTER SODIUM OR CALCIUM HYPOCHLORITE SOLE ACTIVE INGREDIENT PRODUCTS WHICH ARE NOT ELIGIBLE FOR GENERAL REGISTRATION.

1. Within 90 days from receipt of this document, you must submit to the Product Manager in the Registration Division at the address given at the end of this section the "FIFRA Section 3(c)(2)(B) Summary Sheet", EPA form 8570-1. Refer to Appendix II-3 with appropriate attachments.

   If on the Summary Sheet, you commit to develop the data, request a minor chemical exemption, present arguments that a data requirement is not applicable, or submit protocols or modified protocols for Agency review, you must also submit a copy of the Summary Sheet (and any supporting information) to the Office of Compliance Monitoring, which will be monitoring the data generated in response to this notice. This information should be submitted to the Office of Compliance Monitoring at the address given at the end of this section. (Actual studies are not to be submitted to OCM).

2. Within 6 months from receipt of this document you must submit to the Product Manager of the Registration Division:

   a. Application for Pesticide Registration, EPA Form 8570-1.

   b. Confidential Statement of Formula, EPA Form 8570-4.

   c. Product Specific Data Report, EPA Form 8580-4 (Appendix III-1).

   d. Two copies of any required product-specific data.

   e. Two copies of draft labeling, including the label and associated brochures. If current labeling conforms to the requirements of this guidance document and the results of the short-term data, you may submit such labeling. End use product labeling must comply specifically with the instructions in Section I (Regulatory Assessment) of this guidance document. The labeling should be either typewritten text on 8-1/2 x 11 inch paper or a mockup of the labeling suitable for storage in 8-1/2 x 11 inch files. The draft label must indicate the intended colors of the final label, clear indication of the front panel label, and the intended type sizes of the text.

   f. Evidence of compliance with data support requirements of FIFRA sec. 3(c)(1)(D). Refer to 40 CFR 152.80-152.99 (enclosed) for latest requirements.

3. Within the times set forth in Table A, you must submit to the Registration Divison all generic data, unless you are eligible for the formulator's exemption. Prior to the initiation of the test data, all required protocols must be submitted to the Product Manager of the Registration Division. Any person who cannot meet the agreed schedule (regarding the submission of test data) or desires changes in the test protocols must submit a written request for change to the Office of Compliance Monitoring.

D. FOR INTRASTATE PRODUCTS CONTAINING SODIUM OR CALCIUM HYPOCHLORITE AS THE SOLE ACTIVE INGREDIENT

These products are being called in for full Federal registration. Producers of these products are being sent a letter instructing them how to submit an application for registration.

E. AMENDMENTS TO THIS STANDARD

All new formulations outside currently accepted ranges and limits and/or uses not specifically approved in this standard must be approved by the Agency prior to marketing. The procedure for seeking such approval is by formal application to amend this standard. After the standard is modified to expand the range of accepted uses, registrants are permitted to market products labeled for such uses under the revised standard subject to any limitations specified in the amended standard. Applicants will be notified directly when an amendment is accepted.

Applications for amendments to the standard should be submitted in the form of a letter to the Agency. The letter should specify the part of the standard that is proposed for modification, proposed text for modification and the justification (including data, if appropriate). The letter should be sent to the Product Manager in the Registration Division at the address given at the end of this Section.

When an amendment to the standard is accepted, all holders of general registrations are free to modify existing labels or initiate new products in compliance with the revisions without notifying the Agency, as provided in their general registration, provided they comply with any new requirements of the amended standard. Whenever an amendment to the standard is granted on the basis of potentially compensable data, all registrants seeking to add the changes to their registrations will be required to submit an amended certification. This amended certification will confirm the appropriate offers-to-pay have been made. When the Agency initiates changes in existing labeling or product composition limits, the amendment will specify the terms and conditions of the change, including the schedules for compliance.

As the standard is amended, registrants with registrations under previous editions must comply with the newer amendments to the standard, in order to continue to legally market their products. Compliance with an amended standard, though, may require some action by a registrant (e.g. submission of data, reprinting of labels to remove a disallowed use) or no action at all (e.g. when amendments permit optional new uses where no compensation is involved). Each amendment to the Standard will indicate the last date that existing stocks of products with old labeling may be released for shipment.

Registrants ill not be required to reprint their labels upon ssuance of every amendment to the standard. R ther, the Agency will require mandatory reprinting o labels in only very limited circumstances (e.g. eviden e of adverse effects, revocation of tolerances, tc.). Generally, most amendments to the standard will add versatility to their current registration s) (new uses, tolerances, exemptions from the req irement for a tolerance, etc.) and will allow, but n t necessarily require, reprinting of labels, prov ded the registrant complies with any new provisions o the amended standard. Registrants should consu t the Product Manger for questions on reprinting o labels arising from an amended standard.

F. REPORTING OF PRODUCTION UNDER SECTION 7 OF FIFRA

Section 7 of FIFRA and the regulations in 40 CFR 167.1 through 167. require that all production volume of pesticides r gistered under this standard must be reported to he Agency. Production volume is required from individ als or companies who are registered as establishmen s which produce a pesticide, as opposed to an indivi ual or company which has registered products. T e production volume is required in this fashion beca se some registrants may not produce their own pe ticides, but have another individual or company prod ce their product.

Pesticide pr ducers must report production volume within 30 da s of its receipt of its EPA Establishment Number and a nually, thereafter. Generally, the production v lume reporting forms (EPA Form 3540-16) will automat cally be mailed to all producers with an EPA Establis ment number. Producers are required to report produ tion annually, regardless of whether a pesticide is produced by the registered establishment. Registrants nd applicants unfamiliar with reporting requirements should contact their EPA Regional Office for further etails on reporting of production under Section 7 of FIFRA.

G. APPLICATIONS AND OTHER REQUIRED INFORMATION SHOULD BE SUBMITTED TO THE FOLLOWING ADDRESS:

A.E. Castillo, PM-32
Registration Division (TS-767C)
Office of Pesticide Programs
Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460
Phone Number (703) 557-3964

The address for submission to the Office of Compliance Monitoring is:

Laboratory Data Integrity Program
Office of Compliance Monitoring (EN-342)
Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Appendix I-A

CERTIFICATION FOR GENERAL REGISTRATION WITH FORMULATOR EXEMPTION

Product Manager (32)
Registration Division (TS-767C)
Office of Pesticide Programs
The U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Sir:

In accordance with the Sodium and Calcium Hypochlorites Registration Standard, I am applying for a General Registration/Registration for pesticide products containing ____________ (insert sodium of calcium) hypochlorite as a single active ingredient as specified in the standard. I hereby incorporate the above-mentioned standard as part of my application for registration/reregistration.

I certify that all products marketed under this standard are or will be end-use products and contain the active ingredient ____________ (insert sodium or calcium) solely as the result of the incorporation into the product (during formulation or packaging) of another product which contains that active ingredient. This starting material is registered under FIFRA section 3, and is purchased by us from another producer. I understand that if at any time this exemption is no longer applicable, I will offer to pay compensation to the appropriate additional firms and submit a revised certification to the Agency prior to shipment of any end-use product not made from a registered product.

I certify that any quantity of this product which I distribute, sell, offer for sale, hold for sale, ship, deliver, deliver for shipment, or receive and (having so received) deliver or offer to deliver will comply with the conditions specified in the above-mentioned general registration standard as amended on the date of this submission. I understand, and agree on behalf of my firm, that if at any time any portion of this certification is no longer true, or if my firm fails to comply with the statments made in this certification, my firm's products registered under this certification may be cancelled in accordance with FIFRA section 6(b)(1).

Sincerely,

Name:
Title:
Address of Applicant:
Dated:

Name(s) and Address(es)
of any other person(s)
appearing on the label(s):

CERTIFICATION FOR GENERAL REGISTRATION WITHOUT FORMULATOR EXEMPTION

Product Manager (32)
Registration Division (TS-767C)
Office of Pesticide Programs
The U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Sir:

In accordance with the Sodium and Calcium Hypochlorites Registration Standard, I am applying for a General Registration/Registration for pesticide products containing (insert sodium of calcium) ______________ hypochlorite as a single active ingredient as specified in the standard. I hereby incorporate the above-mentioned standard as part of my application for registration/reregistration.

I certify in compliance with 40 CFR 162.3(d) that I have notified in writing the companies who have submitted data upon which I have relied to support my application, as specified in the standard and that I have offered to:

1. pay compensation for those data in accordance with sections 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act, as, amended; and
2. commence negotiations to determine which data are subject to the compensation requirements of FIFRA, and the amount and terms of compensation due, if any.

I certify that any quantity of this product which I distribute, sell, offer for sale, hold for sale, ship, deliver, deliver for shipment, or receive and (having so received) deliver or offer to deliver will comply with the conditions specified in the above-mentioned general registration standard as amended on date of this submission.

I understand, and agree on behalf of my firm, that if at any time any portion of this certification is no longer true, or if my firm fails to comply with the statements made in this certification, my firm's products registered under this certification may be cancelled in accordance with FIFRA section 6(b)(1).

Sincerely,

Name:
Title:
Address of Applicant:
Dated:

Name(s) and Addresses(es)
of any other person(s)
appearing on the label(s):

Guide to Use of This Bibliography

1. CONTENT OF BIBLIOGRAPHY. This bibliography contains citations of all studies considered relevant by EPA in arriving at the positions and conclusions stated elsewhere in the Standard. Primary sources for studies in this bibliography have been the body of data submitted to EPA and its predecessor agencies in support of past regulatory decisions. Selections from other sources including the published literature, in those instances where they have been considered, will be included.

2. UNITS OF ENTRY. The unit of entry in this bibliography is called a "study." In the case of published materials, this corresponds closely to an article. In the case of unpublished materials submitted to the Agency, the Agency has sought to identify documents at a level parallel to the published article from within the typically larger volumes in which they were submitted. The resulting "studies" generally have a distinct title (or at least a single subject), can stand alone for purposes of review, and can be described with a conventional bibliographic citation. The Agency has attempted also to unite basic documents and commentaries upon them, treating them as a single study.

3. IDENTIFICATION OF ENTRIES. The entries in this bibliography are sorted numerically by "Master Record Identifier," or MRID, number. This number is unique to the citation, and should be used at any time specific reference is required. It is not related to the six-digit "Accession Number" which has been used to identify volumes of submitted studies; see paragraph 4(d)(4) below for a further explanation. In a few cases, entries added to the bibliography late in the review may be preceded by a nine-character temporary identifier. These entries are listed after all MRID entries. This temporary identifier number is also to be used whenever specific reference is needed.

4. FORM OF ENTRY. In addition to the Master Record Identifier (MRID), each entry consists of a citation containing standard elements followed, in the case of material submitted to EPA, by a description of the earliest known submission. Bibliographic conventions used reflect the standards of the American National Standards Institute (ANSI), expanded to provide for certain special needs.

a. Author. Whenever the Agency could confidently identify one, the Agency has chosen to show a personal author. When no individual was identified, the Agency has shown an identifiable laboratory or testing facility as author. As a last resort, the Agency has shown the first submitter as author.

b. Document Date. When the date appears as four digits with no question marks, the Agency took it directly from the document. When a four-digit date is followed by a question mark, the bibliographer deduced the date from evidence in the document. When the date appears as (19??), the Agency was unable to determine or estimate the date of the document.

c. Title. In some cases, it has been necessary for Agency bibliographers to create or enhance a document title. Any such editorial insertions are contained between square brackets.

d. Trailing Parentheses. For studies submitted to the Agency in the past, the trailing parentheses include (in addition to any self-explanatory text) the following elements describing the earliest known submission:

    (1) Submission Date. The date of the earliest known submission appears immediately following the word "received."

    (2) Administrative Number. The next element, immediately following the word "under," is the registration number, experimental use permit number, petition number, or other administrative number associated with the earliest known submission.

    (3) Submitter. The third element is the submitter, following the phrase "submitted by." When authorship is defaulted to the submitter, this element is omitted.

    (4) Volume Identification (Accession Numbers). The final element in the trailing parentheses identifies the EPA accession number of the volume in which the original submission of the study appears. The six-digit accession number follows the symbol "CDL," standing for "Company Data Library." This accession number is in turn followed by an alphabetic suffix which shows the relative position of the study within the volume. For example, within accession number 123456, the first study would be 123456-A; the second, 123456-B; the 26th, 123456-Z; and the 27th, 123456-AA.

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registration Under the Standard For Sodium and Calcium Hypochlorite Salts

MRID Citation

00007221 Sanders, B.O. (1972) Skin and Eye Irritation on 15 + 24 Germicidal Cleaner. (Unpublished study received Aug 30, 1972 under 38-13; prepared by Missouri Analytical Laboratories, Inc., submitted by Sinclair Manufacturing Co., Carson, Calif.; CDL:000004-A)

00007248 Latven, A.R. (1976) Sentry (65% Available Chlorine): Toxicology Report. (Unpublished study including letter dated May 13, 1976 from A.R. Latven to George R. Dychdala, received May 14, 1976 under 335-188; prepared by Pharmacology Research, Inc., submitted by Pennwalt Chemical Corp., Philadelphia, Pa.; CDL:227449-B)

00007249 Latven, A.R. (1976) Sentry (30% Available Chlorine): Toxicology Report. (Unpublished study including letter dated May 13, 1976 from A.R. Latven to George R. Dychdala, received May 14, 1976 under 335-188; prepared by Pharmacology Research, Inc., submitted by Pennwalt Chemical Corp., Philadelphia, Pa.; CDL:227449-C)

00007274 WARF Institute, Incorporated (1977) Report: Analysis for Acute Oral Toxicity, Primary Skin Irritation, Primary Eye Irritation: WARF Institute No. 7091487. (Unpublished study including letter dated Nov 9, 1977 from L.M. Wise to Memo for file, received Nov 10, 1977 under 35317-1; submitted by Kuehne Chemical Co., Inc., Cranford, N.J.; CDL:232206-A)

00007275 Beavers, J.B. (1978) Final Report: Eight-Day Dietary LC50—Bobwhite Quail: Project No. 156-101. (Unpublished study received Apr 4, 1978 under 35317-1; prepared by Wildlife International, Ltd., submitted by Kuehne Chemical Co., Inc., Cranford, N.J.; CDL: 233388-A)

00007276 Beavers, J.B. (1978) Final Report: Acute Oral LD50—Bobwhite Quail: Project No. 156-103. (Unpublished study received Apr 4, 1978 under 35317-1; prepared by Wildlife International, Ltd., submitted by Kuehne Chemical Co., Inc., Cranford, N.J.; CDL:233388-B)

00007277 WARF Institute, Incorporated (1978) Report: Analysis for Acute Dermal Toxicity: WARF Institute No. 8021128. (Unpublished study received Apr 28, 1978 under 35317-1; submitted by Kuehne Chemical Co., Inc., Cranford, N.J.; CDL:233597-A)

00007278 Beavers, J.B. (1978) Final Report: Eight-Day Dietary LC50—Mallard Duck: Project No. 156-102. (Unpublished study received Apr 28, 1978 under 35317-1; prepared by Wildlife International, Ltd., submitted by Kuehne Chemical Co., Inc., Cranford, N.J.; CDL: 233598-A)

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registration Under the Standard For Sodium and Calcium Hypochlorite Salts

MRID Citation

00007279 Morrissey, A.E. (1978) The Acute Toxicity of Sodium hypochlorite Solution to the Water Flea *Daphnia magna* (Straus): UCES Proj. No. 11506-72-03. (Unpublished study received Apr 28, 1978 under 35317-1; prepared by Union Carbide Corp., submitted by Kuehne Chemical Co., Inc., Cranford, N.J.; CDL:233599-A)

00007285 Paa, H. (1977) Report to Allied-Chlorine: Acute Toxicity Studies with Sodium hypochlorite Solution: IBT No. 8530-10159. (Unpublished study received Feb 22, 1977 under 33458-5; prepared by Industrial Bio-Test Laboratories, Inc., submitted by Allied Chlorine and Chemical Products, Inc., Miami, Fla.; CDL:231463-A)

00007369 Paa, H. (1977) Report to Jones Chemicals, Incorporated: Acute Toxicity Studies with Sunny Sol 5.25% Bleach: IBT No. 8530-10145. (Unpublished study received Mar 23, 1977 under 1744-1; prepared by Industrial Bio-Test Laboratories, Inc., submitted by Jones Chemical, Inc., Caledonia, N.Y.; CDL:231821-A)

00007374 Baker, R.G. (1976) Report to Jones Chemicals, Inc.: Acute Toxicity Studies with Sodium hypochlorite, Sunny Sol 150: IBT No. 8530-09248. (Unpublished study received Sep 7, 1976 under 1744-2; prepared by Industrial Bio-Test Laboratories, Inc., submitted by Jones Chemicals, Inc., Caledonia, N.Y., CDL:225754-A)

00007381 Palanker, A.L. (1975) Final Report: Acute Inhalation in Rats; Acute Oral LD50 in Rats; Eye Irritation in Rabbits; Dermal Irritation in Rabbits; Acute Dermal Toxicity in Rabbits. (Unpublished study received Mar 3, 1975 under 1258-161; prepared by Biometric Testing, Inc., submitted by Olin Corp., Stamford, Conn.; CDL: 233785-A)

00007397 Babish, J.G. (1978) Report: Approximate Acute Oral Toxicity (LD50) in Rats. (Unpublished study received Jan 19, 1979 under unknown admin. no.; prepared by Food and Drug Research Laboratories, Inc., submitted by Chlorine Institute, Inc., New York, N.Y.; CDL:236802-B)

00007398 Babish, J.G. (1978) Report: Acute Dermal Toxicity Study in Rabbits. (Unpublished study received Jan 19, 1979 under unknown admin. no.; prepared by Food and Drug Research Laboratories, Inc., submitted by Chlorine Institute, Inc., New York, N.Y.; CDL:236802-C)

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting
Registration Under the Standard For Sodium and
Calcium Hypochlorite Salts

MRID	Citation
00007399	Babish, J.G. (1978) Report: Approximate Acute Oral Toxicity (LD50) in Rats. (Unpublished study received Jan 19, 1979 under unknown admin. no.; prepared by Food and Drug Research Laboratories, Inc., submitted by Chlorine Institute, Inc., New York, N.Y.; CDL:236802-F)
00007400	Stiefel, C.; Fratus, G.; Hawes, M.; et al. (1978) Acute Toxicity of Sodium hypochlorite to Rainbow Trout (*Salmo gairdneri*): Report No. BW-78-8-280. (Unpublished study received Jan 19, 1979 under unknown admin. no.; prepared by EG&G, Bionomics, submitted by Chlorine Institute, Inc., New York, N.Y.; CDL:236803-B)
00007401	Buccafusco, R.J.; Hawes, M.; Stiefel, C.; et al. (1978) Acute Toxicity of Sodium hypochlorite to Bluegill (*Lepomis machrochirus*): Report No. BW-78-7-234. (Unpublished study received Jan 19, 1979 under unkown admin. no.; prepared by EG&G, Bionomics, submitted by Chlorine Institute, Inc., New York, N.Y.; CDL:236803-C)
00007402	LeBlanc, G.A.; Surprenant, D.C. (1978) Acute Toxicity of Sodium hypochlorite to the Water Flea (*Daphnia magna*): Report No. BW-78-7-206. (Unpublished study received Jan 19, 1979 under unknown admin. no.; prepared by EG&G, Bionomics, submitted by Chlorine Institute, Inc., New York, N.Y.; CDL:236803-D)
00007403	Beavers, J.B.; Fink, R.; Grimes, J.; et al. (1978) Final Report: Acute Oral LD50—Bobwhite Quail: Project No. 158-103. (Unpublished study received Jan 19, 1979 under unknown admin. no.; prepared by Wildlife International, Ltd. in cooperation with Washington College, submitted by Chlorine Institute, Inc., New York, N.Y.; CDL:236804-B)
00007404	Beavers, J.B.; Fink, R.; Grimes, J.; et al. (1978) Final Report: Eight-Day Dietary LC50—Mallard Duck: Project No. 158-102. (Unpublished study received Jan 19, 1979 under unknown admin. no.; prepared by Wildlife International, Ltd. in cooperation with Washington College, submitted by Chlorine Institute, Inc., New York, N.Y.; CDL:236804-C)
00007405	Beavers, J.B.; Brown, R. (1978) Final Report: Eight-Day Dietary LC50—Bobwhite Quail: Project No. 158-101. (Unpublished study received Jan 19, 1979 under unknown admin. no.; prepared by Wildlife International, Ltd., submitted by Chlorine Institute, Inc., New York, N.Y.; CDL:236804-D)

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registration Under the Standard For Sodium and Calcium Hypochlorite Salts

MRID	Citation
00007495	Buccafusco, R.J.; LeBlanc, G.A. (1977) Acute Toxicity of HTH to Bluegill (*Lepomis macrochirus*), Rainbow Trout (*Salmo gairdneri*) and the Water Flea (*Daphnia magna*). (Unpublished study including letter dated Aug 15, 1977 from S.J. Barbee to R.L. Bertrand, received Sep 8, 1977 under 1258-427; prepared by EG&G, Bionomics, submitted by Olin Corp., Stamford, Conn.; CDL:231907-A)
00007496	Beavers, J.B. (1977) Final Report: Acute Oral LD50—Bobwhite Quail: Project No. 133-107. (Unpublished study received Sep 8, 1977 under 1258-427; prepared by Wildlife Int., Ltd. in cooperation with Washington College and Maryland, Dept. of Agriculture, Div. of Inspection and Regulation, submitted by Olin Corp., Stamford, Conn.; CDL:231907-B)
00007540	New England Testing Laboratory, Incorporated (1977) Certificate of Analysis; Analysis for: Oral LD50, Primary Dermal Irritation, Primary Eye Irritation, Dermal LD50. (Unpublished study received May 9, 1977 under 1763-2; submitted by Fields Point Chemical, Inc., Providence, R.I.; CDL:230000-A)
00007580	Goldhammer, R.E. (1973) Acute Inhalation in Rats: Acute Oral LD50 in Rats: Eye Irritation in Rabbits: Dermal Irritation in Rabbits. (Unpublished study received Jul 2, 1973 under 1258-971; prepared by Biometric Testing, Inc., submitted by Olin Corp., Stamford, Conn.; CDL:239291-A)
00008190	Calmbacher, C.W. (1978) Acute Toxicity of Sodium hypochlorite Solution to the Bluegill Sunfish *Lepomis macrochirus* Rafinesque: UCES Proj. No. 11506-72-01. (Unpublished study received Apr 4, 1978 under 35317-1; prepared by Union Carbide Corp., submitted by Kuehne Chemical Co., Inc., Cranford, N.J.; CDL:233389-A)
00008191	Calmbacher, C.W. (1978) Acute Toxicity of Sodium hypochlorite Solution to the Rainbow Trout, *Salmo gairdneri* Richardson: UCES Projt. No. 11506-72-02. (Unpublished study received Apr 4, 1978 under 35317-1; prepared by Union Carbide Corp., submitted by Kuehne Chemical Co., Inc., Cranford, N.J.; CDL:233390-A)
00008202	Baker, R.G. (1974) Report to Olin Corporation: Primary Skin Irritation Test with Mildew Rid in Albino Rabbits: IBT No. 601-05594. (Unpublished study received Mar 3, 1975 under 1258-161; prepared by Industrial Bio-Test Laboratories, Inc., submitted by Olin Corp., Stamford, Conn.; CDL:233785-B)

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
Citations Considered to be Part of the Data Base Supporting Registration Under the Standard For Sodium and Calcium Hypochlorite Salts

MRID	Citation
00008203	Babish, J.G. (1978) Report: Primary Skin Irritation Study with Rabbits. (Unpublished study received Jan 19, 1979 under unknown admin. no.; prepared by Food and Drug Research Laboratories, Inc., submitted by Chlorine Institute, Inc., New York, N.Y.; CDL:236802-D)
00008204	Babish, J.G. (1978) Report: Eye Irritation Test in Rabbits with Fluorescein. (Unpublished study received Jan 19, 1979 under unknown admin. no.; prepared by Food and Drug Research Laboratories, Inc., submitted by Chlorine Institute, Inc., New York, N.Y.; CDL:236802-E)
00008205	Babish, J.G. (1978) Report: Primary Skin Irritation Study with Rabbits. (Unpublished study received Jan 19, 1979 under unknown admin. no.; prepared by Food and Drug Research Laboratories, Inc., submitted by Chlorine Institute, Inc., New York, N.Y.; CDL:236802-G)
00008206	Babish, J.G. (1978) Report: Eye Irritation Tests in Rabbits with Fluorescein. (Unpublished study received Jan 19, 1979 under unknown admin. no.; prepared by Food and Drug Research Laboratories, Inc., submitted by Chlorine Institute, Inc., New York, N.Y.; CDL:236802-H)
00019313	LeBlanc, G.A. (1977) Acute Toxicity of Sodium hypochlorite Solution to the Water Flea (Daphnia magna): ICG/T-78-076. (Unpublished study received Dec 7, 1978 under 230-69; prepared by EG&G, Bionomics, submitted by FMC Corp., Industrial Chemical Group, Philadelphia, Pa.; CDL:236584-B)
00020072	Drube, R. (1978) Acute Oral Toxicity, Acute Dermal Toxicity, Primary Skin Irritation and Corrosivity, and Acute Eye Irritation Studies of Sodium hypochlorite Solution C (Surchlor, Sur-Shock). (Unpublished study received Jul 18, 1979 under unknown admin. no.; prepared by Hill Top Research, Inc., submitted by Surpass Chemical Co., Inc., Albany, N.Y.; CDL:238938-B)
GS029026	Tobler, J.; Cohn, W.E.; Jolley, R.; Carpenter, J.; Ferguson, M.; Stair, D.; Sigmon, C.; Hinkle, C.; Mattice, J.; Middaugh, D.; Cumming, R. (1981) Ambient Water Quality Criteria for Chlorine (external review draft). Prepared by Science Applications, Inc. 800 Oak Ridge Turnpike, Oakridge, TN for the U.S. EPA, Environmental Criteria and Assessment Office, Cincinnati, Ohio. dated June 29.

[illegible]
(Expires 5/31/86)

FIFRA SECTION 3(C)(2)(B) SUMMARY SHEET

EPA REGISTRATION NO.

PRODUCT NAME

APPLICANT'S NAME

DATE GUIDANCE DOCUMENT ISSUED

With respect to the requirement to submit "generic" data imposed by the FIFRA section 3(C)(2)(B) notice contained in the referenced Guidance Document, I am responding in the following manner.

☐ 1. I will submit data in a timely manner to satisfy the following requirements. If the test procedures I will use deviate from (or are not specified in) the Registration Guidelines or the Protocols contained in the Reports of Expert Groups to the Chemicals Group, OECD Chemicals Testing Programme, I enclose the protocols that I will use.

☐ 2. I have entered into an agreement with one or more other registrants under FIFRA section 3(C)(2)(B)(ii) to satisfy the following data requirements. The tests, and any required protocols, will be submitted to EPA by:

NAME OF OTHER REGISTRANT

☐ 3. I enclose a completed "Certification of Attempt to Enter Into an Agreement with Other Registrants for Development of Data" with respect to the following data requirements:

☐ 4. I request that you amend my registration by deleting the following uses (this option is not available to applicants for new products):

☐ 5. I request voluntary cancellation of the registration of this product. (This option is not available to applicants for new products.)

REGISTRANT'S AUTHORIZED REPRESENTATIVE	SIGNATURE	DATE

EPA Form 8580-1 (10-82)

FORMULATOR'S EXEMPTION STATEMENT
(40 CFR 152.85)

EPA File Symbol/Reg. No. ______________ Product Name ______________________

Applicant's Name and Address ____

____

____

____

As an authorized representative of the applicant for registration of the product identified above, I hereby certify that:

(1) This product contains the active ingredient(s): ________________

____

____

(2) Each active ingredient listed in paragraph (1) is present solely as the result of the incorporation into the product (during formulation or packaging) of another product which contains that active ingredient, which is registered under FIFRA sec. 3, and which is purchased by us from another producer.

(3) Indicate by circling (A) or (B) below which paragraph applies:

(A) An accurate Confidential Statement of Formula (EPA Form 8570-4) for the above identified product is attached to this statement. That formula statement indicates, by company name, registration number and product name, the source of the active ingredient(s) listed in paragraph (1).

OR

(B) The Confidential Statement of Formula dated __________ on file with the EPA is complete, current and accurate and contains the information required on the current CSF Form No. 8570-4. The registered source(s) of the active ingredient(s) listed in paragraph (1) is/are listed below:

Active ingredient	Source: Product name and Reg. No.

Signature ______________________________

Date ______________ Title ______________________________

EPA Form (April 1985)

CERTIFICATION WITH RESPECT TO CITATION OF DATA

EPA File Symbol/Reg. No. ____________ Date of application ____________

Name of Product ____________________________

Applicant's Name and Address ____________________________

____

____

____

1. This application is supported by all data submitted or cited in the application. In addition, if cite-all options are indicated, this application is supported by all data in the Agency's files that concern the properties or effects of this product or of any other product that is identical or substantially similar, and that is one of the types of data that would be required to be submitted if this application sought the initial registration of a product of identical or similar composition and intended uses under the data requirements in effect on the date of approval of this application.

2. I certify that, for each study cited in support of this application for registration that is an exclusive use study, I have obtained the written permission of the original data submitter to cite that study.

3. I certify that, for each study cited in support of this application for registration that is not an exclusive use study:

I have obtained the written permission of the original data submitter to cite that study; or

I have notified in writing the companies who have submitted data I have cited to support this application and have offered to: (a) Pay compensation for those data in accordance with section 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act; and (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I have notified are: (Check one)

[ ] All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (Cite-all method or cite-all option under Selective Method). (Also sign the General Offer to Pay Statement below.)

[ ] Those companies who have submitted the studies which I have cited (Selective method)

Date ____________ Signature ____________________

Title ____________________

General Offer to Pay: I hereby offer and agree to pay compensation to other persons, with regard to the approval of this application, to the extent required by FIFRA sec. 3(c)(1)(D) and 3(c)(2)(D).

Date ____________ Signature ____________________

Title ____________________

OMB Approval 2070-0057 (expires 5/31/86)

CERTIFICATION OF ATTEMPT TO ENTER INTO AN AGREEMENT WITH OTHER REGISTRANTS FOR DEVELOPMENT OF DATA

(To qualify, certify ALL four items)

GUIDANCE DOCUMENT DATE

ACTIVE INGREDIENT

1. I am duly authorized to represent the following firm(s) who are subject to the requirements of a Notice under FIFRA Section 3(c)(2)(B) contained in a Guidance Document to submit data concerning the active ingredient:

NAME OF FIRM	EPA COMPANY NUMBER

(This firm or group of firms is referred to below as "my firm".)

2. My firm is willing to develop and submit the data as required by that Notice, if necessary. However, my firm would prefer to enter into an agreement with one or more other registrants to develop jointly, or to share in the cost of developing, the following required items or data:

3. My firm has offered in writing to enter into such an agreement. Copies of the offers are attached. That offer was irrevocable and included an offer to be bound by an arbitration decision under FIFRA Section 3(c)(2)(B)(iii) if final agreement on all terms could not be reached otherwise. This offer was made to the following firm(s) on the following date(s):

NAME OF FIRM	DATE OF OFFER

However, none of those firm(s) accepted my offer.

4. My firm requests that EPA not suspend the registration(s) of my firm's product(s), if any of the firms named in paragraph (3) above have agreed to submit the data listed in paragraph (2) above in accordance with the Notice. I understand EPA will promptly inform me whether my firm must submit data to avoid suspension of its registration(s) under FIFRA Section 3(c)(2)(B). (This statement does not apply to applicants for new products.) I give EPA permission to disclose this statement upon request.

TYPED NAME	SIGNATURE	DATE

EPA Form 8580-6 (10-82)

Appendix III-1

PRODUCT SPECIFIC DATA REPORT

EPA Registration No.________________Guidance Document for__________________________

Date______________________________

Registration Guideline No.	Name of Test	Test not required for my product listed above (check below)	I am complying with data requirements by Citing MRID#	Submitting Data (Attached)	(For EPA Use Only) Accession Numbers Assigned
§158.20 PRODUCT CHEMISTRY					
61-1	Identity of ingredients				
61-2	Statement of composition				
61-3	Discussion of formation of ingredients				
62-1	Preliminary analysis				
62-2	Certification of limits				
62-3	Analytical methods for enforcement limits				
63-2	Color				
63-3	Physical state				
63-4	Odor				
63-5	Melting point				
63-6	Boiling point				
63-7	Density, bulk-density, or specific gravity				
63-8	Solubility				
63-9	Vapor pressure				
63-10	Dissociation constant				
63-11	Octanol/water partition coefficient				
63-12	pH				

Registration Guideline No.	Name of Test	Test not required for my product listed above (check below)	I am complying with data requirements by: Citing MRID#	I am complying with data requirements by: Submitting Data (Attached)	(For EPA Use Only) Accession Numbers Assigned
63-13	Stability				
63-14	Oxidizing/reducing reaction				
63-15	Flammability				
63-16	Explodability				
63-17	Storage stability				
63-18	Viscosity				
63-19	Miscibility				
63-20	Corrosion characteristics				
63-21	Dielectric breakdown voltage				
§158.135 TOXICOLOGY					
81-1	Acute oral LD-50, rat				
81-2	Acute dermal LD-50				
81-3	Acute inhalation, LC-50 rat				
81-4	Primary eye irritation, rabbit				
81-5	Primary dermal irritation				
81-6	Dermal sensitization				

APPENDIX IV -1

§ 162.10 Labeling requirements.

(a) *General*—(1) *Contents of the label.* Every pesticide products shall bear a label containing the information specified by the Act and the regulations in this Part. The contents of a label must show clearly and prominently the following:

(i) The name, brand, or trademark under which the product is sold as prescribed in paragraph (b) of this section;

(ii) The name and address of the producer, registrant, or person for whom produced as prescribed in paragraph (c) of this section:

(iii) The net contents as prescribed in paragraph (d) of this section:

(iv) The product registration number as prescribed in paragraph (e) of this section:

(v) The producing establishment number as prescribed in paragraph (f) of this section:

(vi) An ingredient statement as prescribed in paragraph (g) of this section:

(vii) Warning or precautionary statements as prescribed in paragraph (h) of this section:

(viii) The directions for use as prescribed in paragraph (i) of this section: and

(ix) The use classification(s) as prescribed in paragraph (j) of this section.

(2) *Prominence and legibility.* (i) All words, statements, graphic representations, designs or other information required on the labeling by the Act or the regulations in this part must be clearly legible to a person with normal vision, and must be placed with such conspicuousness (as compared with other words, statements, designs, or graphic matter on the labeling) and expressed in such terms as to render it likely to be read and understood by the ordinary individual under customary conditions of purchase and use.

(ii) All required label text must:

(A) Be set in 6-point or larger type:

(B) Appear on a clear contrasting background: and

(C) Not be obscured or crowded.

(3) *Language to be used.* All required label or labeling text shall appear in the English language. However, the Agency may require or the applicant may propose additional text in other languages as is considered necessary to protect the public. When additional text in another language is necessary, all labeling requirements will be applied equally to both the English and other-language versions of the labeling.

(4) *Placement of Label*—(i) *General.* The label shall appear on or be securely attached to the immediate container of the pesticide product. For purposes of this Section, and the misbranding provisions of the Act, "securely attached" shall mean that a label can reasonably be expected to remain affixed during the foreseeable conditions and period of use. If the immediate container is enclosed within a wrapper or outside container through which the label cannot be clearly read, the label must also be securely attached to such outside wrapper or container, if it is a part of the package as customarily distributed or sold.

(ii) *Tank cars and other bulk containers*—(A) *Transportation.* While a pesticide product is in transit, the appropriate provisions of 49 CFR Parts 170-189, concerning the transportation of hazardous materials, and specifically those provisions concerning the labeling, marking and placarding of hazardous materials and the vehicles carrying them, define the basic Federal requirements. In addition, when any registered pesticide product is transported in a tank car, tank truck or other mobile or portable bulk container, a copy of the accepted label must be attached to the shipping papers, and left with the consignee at the time of delivery.

(B) *Storage.* When pesticide products are stored in bulk containers, whether mobile or stationary, which remain in the custody of the user, a copy of the label of labeling, including all appropriate directions for use, shall be securely attached to the container in the immediate vicinity of the discharge control valve.

(5) *False or misleading statements.* Pursuant to section 2(q)(1)(A) of the Act, a pesticide or a device declared subject to the Act pursuant to § 162.15, is misbranded if its labeling is false or misleading in any particular including both pesticidal and non-pesticidal claims. Examples of statements or representations in the labeling which constitute misbranding include:

(i) A false or misleading statement concerning the composition of the product:

(ii) A false or misleading statement concerning the effectiveness of the product as a pesticide or device:

(iii) A false or misleading statement about the value of the product for purposes other than as a pesticide or device:

(iv) A false or misleading comparison with other pesticides or devices:

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(v) Any statement directly or indirectly implying that the pesticide or device is recommended or endorsed by any agency of the Federal Government;

(vi) The name of a pesticide which contains two or more principal active ingredients if the name suggests one or more but not all such principal active ingredients even though the names of the other ingredients are stated elsewhere in the labeling;

(vii) A true statement used in such a way as to give a false or misleading impression to the purchaser;

(viii) Label disclaimers which negate or detract from labeling statements required under the Act and these regulations;

(ix) Claims as to the safety of the pesticide or its ingredients, including statements such as "safe," "nonpoisonous," "noninjurious," "harmless" or "nontoxic to humans and pets" with or without such a qualifying phrase as "when used as directed"; and

(x) Non-numerical and/or comparative statements on the safety of the product, including but not limited to:

(A) "Contains all natural ingredients";

(B) "Among the least toxic chemicals known"

(C) "Pollution approved"

(6) *Final printed labeling.* (i) Except as provided in paragraph (a)(6)(ii) of this section, final printed labeling must be submitted and accepted prior to registration. However, final printed labeling need not be submitted until draft label texts have been provisionally accepted by the Agency.

(ii) Clearly legible reproductions or photo reductions will be accepted for unusual labels such as those silk-screened directly onto glass or metal containers or large bag or drum labels. Such reproductions must be of microfilm reproduction quality.

(b) *Name, brand, or trademark.* (1) The name, brand, or trademark under which the pesticide product is sold shall appear on the front panel of the label.

(2) No name, brand, or trademark may appear on the label which:

(i) Is false or misleading, or

(ii) Has not been approved by the Administrator through registration or supplemental registration as an additional name pursuant to § 162.6(b)(4).

(c) Name and address of producer, registrant, or person for whom produced. An unqualified name and address given on the label shall be considered as the name and address of the producer. If the registrant's name appears on the label and the registrant is not the producer, or if the name of the person for whom the pesticide was produced appears on the label, it must be qualified by appropriate wording such as "Packed for * * *," "Distributed by * * *," or "Sold by * * *" to show that the name is not that of the producer.

(d) *Net weight or measure of contents.* (1) The net weight or measure of content shall be exclusive of wrappers or other materials and shall be the average content unless explicitly stated as a minimum quantity.

(2) If the pesticide is a liquid, the net content statement shall be in terms of liquid measure at 68° F (20°C) and shall be expressed in conventional American units of fluid ounces, pints, quarts, and gallons.

(3) If the pesticide is solid or semisolid, viscous or pressurized, or is a mixture of liquid and solid, the net content statement shall be in terms of weight expressed as avoirdupois pounds and ounces.

(4) In all cases, net content shall be stated in terms of the largest suitable units, i.e., "1 pound 10 ounces" rather than "26 ounces."

(5) In addition to the required units specified, net content may be expressed in metric units.

(6) Variation above minimum content or around an average is permissible only to the extent that it represents deviation unavoidable in good manufacturing practice. Variation below a stated minimum is not permitted. In no case shall the average content of the packages in a shipment fall below the stated average content.

(e) *Product registration number.* The registration number assigned to the pesticide product at the time of registration shall appear on the label, preceded by the phrase "EPA Registration No.," or the phrase "EPA Reg. No." The registration number shall be set in type of a size and style similar to other print on that part of the label on which it appears and shall run parallel to it. The registration number and the required identifying phrase shall not appear in such a manner as to suggest or imply recommendation or endorsement of the product by the Agency.

(f) *Producing establishments registration number.* The producing establishment registration number preceded by the phrase "EPA Est.", of the final establishment at which the product was produced may appear in any suitable location on the label or immediate container. It must appear on the wrapper or outside container of the package if the EPA establishment registration number on the immediate container cannot be clearly read through such wrapper or container.

(g) *Ingredient statement*—(1) *General.* The label of each pesticide product must bear a statement which contains the name and percentage by weight of each active ingredient, the total percentage by weight of all inert ingredients; and if the pesticide contains arsenic in any form, a statement of the percentages of total and water-soluble arsenic calculated as elemental arsenic. The active ingredients must be designated by the term "active ingredients" and the inert ingredients by the term "inert ingredients," or the singular forms of these terms when appropriate. Both terms shall be in the same type size, be aligned to the same margin and be equally prominent. The statement "Inert Ingredients, none" is not required for pesticides which contain 100 percent active ingredients. Unless the ingredient statement is a complete analysis of the pesticide, the term "analysis" shall not be used as a heading for the ingredient statement.

(2) *Position of ingredient statement.* (i) The ingredient statement is normally required on the front panel of the label. If there is an outside container or wrapper through which the ingredient statement cannot be clearly read, the ingredient statement must also appear on such outside container or wrapper. If the size or form of the package makes it impracticable to place the ingredient statement on the front panel of the label, permission may be granted for the ingredient statement to appear elsewhere.

(ii) The text of the ingredient statement must run parallel with other text on the panel on which it appears, and must be clearly distinguishable from and must not be placed in the body of other text.

(3) *Names to be used in ingredient statement.* The name used for each ingredient shall be the accepted common name, if there is one, followed by the chemical name. The common name may be used alone only if it is well known. If no common name has been established, the chemical name alone shall be used. In no case will the use of a trademark or proprietary name be permitted unless such name has been accepted as a common name by the Administrator under the authority of Section 25(c)(6).

(4) *Statements of percentages.* The percentages of ingredients shall be stated in terms of weight-to-weight. The sum of percentages of the active and the inert ingredients shall be 100. Percentages shall not be expressed by a range of values such as "22-25%." If the uses of the pesticide product are expressed as weight of active ingredient per unit area, a statement of the weight of active ingredient per unit volume of the pesticide formulation shall also appear in the ingredient statement.

(5) *Accuracy of stated percentages.* The percentages given shall be as precise as possible reflecting good manufacturing practice. If there may be unavoidable variation between manufacturing batches, the value stated for each active ingredient shall be the lowest percentage which may be present.

(6) *Deterioration.* Pesticides which change in chemical composition significantly must meet the following labeling requirements:

(i) In cases where it is determined that a pesticide formulation changes chemical composition significantly, the product must bear the following statement in a prominent position on the label: "Not for sale or use after [date]."

(ii) The product must meet all label claims up to the expiration time indicated on the label.

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(7) *Inert ingredients.* The Administrator may require the name of any inert ingredient(s) to be listed in the ingredient statement if he determines that such ingredient(s) may pose a hazard to man or the environment.

(h) *Warnings and precautionary statements.* Required warnings and precautionary statements concerning the general areas of toxicological hazard including hazard to children, environmental hazard, and physical or chemical hazard fall into two groups: those required on the front panel of the labeling and those which may appear elsewhere. Specific requirements concerning content, placement, type size, and prominence are given below.

(1) *Required front panel statements.* With the exception of the child hazard warning statement, the text required on the front panel of the label is determined by the Toxicity Category of the pesticide. The category is assigned on the basis of the highest hazard shown by any of the indicators in the table below:

Hazard indicators	Toxicity categories			
	I	II	III	IV
Oral LD$_{50}$	Up to and including 50 mg/kg.	From 50 thru 500 mg/kg.	From 500 thru 5000 mg/kg.	Greater than 5000 mg/kg.
Inhalation LC$_{50}$	Up to and including .2 mg/liter.	From .2 thru 2 mg/liter.	From 2. thru 20 mg/liter.	Greater than 20 mg/liter.
Dermal LD$_{50}$	Up to and including 200 mg/kg.	From 200 thru 2000.	From 2,000 thru 20,000.	Greater than 20,000.
Eye effects	Corrosive; corneal opacity not reversible within 7 days.	Corneal opacity reversible within 7 days; irritation persisting for 7 days.	No corneal opacity; irritation reversible within 7 days.	No irritation.
Skin effects	Corrosive	Severe irritation at 72 hours.	Moderate irritation at 72 hours.	Mild or slight irritation at 72 hours.

(i) *Human hazard signal word*—(A) *Toxicity Category I.* All pesticide products meeting the criteria of Toxicity Category I shall bear on the front panel the signal word "Danger." In addition if the product was assigned to Toxicity Category I on the basis of its oral, inhalation or dermal toxicity (as distinct from skin and eye local effects) the word "Poison" shall appear in red on a background of distinctly contrasting color and the skull and crossbones shall appear in immediate proximity to the word "poison."

(B) *Toxicity Category II.* All pesticide products meeting the criteria of Toxicity Category II shall bear on the front panel the signal word "Warning."

(C) *Toxicity Category III.* All pesticide products meeting the criteria of Toxicity Category III shall bear on the front panel the signal word "Caution."

(D) *Toxicity Category IV.* All pesticide products meeting the criteria of Toxicity Category IV shall bear on the front panel the signal word "Caution."

(E) *Use of signal words.* Use of any signal word(s) associated with a higher Toxicity Category is not permitted except when the Agency determines that such labeling is necessary to prevent unreasonable adverse effects on man or the environment. In no case shall more than one human hazard signal word appear on the front panel of a label.

(ii) *Child hazard warning.* Every pesticide product label shall bear on the front panel the statement "keep out of reach of children." Only in cases where the likelihood of contact with children during distribution, marketing, storage or use is demonstrated by the applicant to be extremely remote, or if the nature of the pesticide is such that it is approved for use on infants or small children, may the Administrator waive this requirement.

(iii) *Statement of practical treatment*—(A) *Toxicity Category I.* A statement of practical treatment (first aid or other) shall appear on the front panel of the label of all pesticides falling into Toxicity Category I on the basis of oral, inhalation or dermal toxicity. The Agency may, however, permit reasonable variations in the placement of the statement of practical treatment is some reference such as "See statement of practical treatment on back panel" appears on the front panel near the word "Poison" and the skull and crossbones.

(B) *Other toxicity categories.* The statement of practical treatment is not required on the front panel except as described in paragraph (h)(1)(iii)(A) of this section. The applicant may, however, include such a front panel statement at his option. Statements of practical treatment are, however, required elsewhere on the label in accord with paragraph (h)(2) of this section if they do not appear on the front panel.

(iv) *Placement and prominence.* All the require front panel warning statements shall be grouped together on the label, and shall appear with sufficient prominence relative to other front panel text and graphic material to make them unlikely to be overlooked under customary conditions of purchase and use. The following table shows the minimum type size requirements for the front panel warning statements on various sizes of labels:

Size of label front panel in square inches	Points	
	Required signal word, all capitals	"Keep out of reach of Children"
5 and under	6	6
Above 5 to 10	10	6
Above 10 to 15	12	8
Above 15 to 30	14	10
Over 30	18	12

(2) *Other required warnings and precautionary statements.* The warnings and precautionary statements as required below shall appear together on the label under the general heading "Precautionary Statements" and under appropriate subheadings of "Hazard to Humans and Domestic Animals," "Environmental Hazard" and "Physical or Chemical Hazard."

(i) *Hazard to humans and domestic animals.* (A) Where a hazard exists to humans or domestic animals, precautionary statements are required indicating the particular hazard, the route(s) of exposure and the precautions to be taken to avoid accident, injury or damage. The precautionary paragraph shall be immediately preceded by the appropriate hazard signal word.

(B) The following table depicts typical precautionary statements. These statements must be modified or expanded to reflect specific hazards.

Toxicity category	Precautionary statements by toxicity category	
	Oral, inhalation, or dermal toxicity	Skin and eye local effects
I	Fatal (poisonous) if swallowed [inhaled or absorbed through skin]. Do not breathe vapor [dust or spray mist]. Do not get in eyes, on skin, or on clothing [Front panel statement of practical treatment required.].	Corrosive, causes eye and skin damage [or skin irritation]. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and rubber gloves when handling. Harmful or fatal if swallowed. [Appropriate first aid statement required.]
II	May be fatal if swallowed [inhaled or absorbed through the skin]. Do not breathe vapors [dust or spray mist]. Do not get in eyes, on skin, or on clothing. [Appropriate first aid statements required.].	Causes eye [and skin] irritation. Do not get in eyes, on skin, or on clothing. Harmful if swallowed. [Appropriate first aid statement required.]
III	Harmful if swallowed [inhaled or absorbed through the skin]. Avoid breathing vapors [dust or spray mist]. Avoid contact with skin [eyes or clothing]. [Appropriate first aid statement required.].	Avoid contact with skin, eyes or clothing. In case of contact immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists.
IV	[No precautionary statements required.]	[No precautionary statements required.]

(ii) *Environmental hazards.* Where a hazard exists to non target organisms excluding humans and domestic animals, precautionary statements are required stating the nature of the hazard and the appropriate precautions to avoid potential accident, injury or damage. Examples of the hazard statements and the circum-

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stances under which they are required follow:

(A) If a pesticide intended for outdoor use contains an active ingredient with a mammalian acute oral LD_{50} of 100 or less, the statement "This Pesticide is Toxic to Wildlife" is required.

(B) If a pesticide intended for outdoor use contains an active ingredient with a fish acute LC_{50} of 1 ppm or less, the statement "This Pesticide is Toxic to Fish" is required.

(C) If a pesticide intended for outdoor use contains an active ingredient with an avian acute oral LD_{50} of 100 mg/kg or less, or a subacute dietary LC_{50} of 500 ppm or less, the statement "This Pesticide is Toxic to Wildlife" is required.

(D) If either accident history or field studies demonstrate that use of the pesticide may result in fatality to birds, fish or mammals, the statement "This pesticide is extremely toxic to wildlife (fish)" is required.

(E) For uses involving foliar application to agricultural crops, forests, or shade trees, or for mosquito abatement treatments, pesticides toxic to pollinating insects must bear appropriate label cautions.

(F) For all outdoor uses other than aquatic applications the label must bear the caution "Keep out of lakes, ponds or streams. Do not contaminate water by cleaning of equipment or disposal of wastes."

(iii) *Physical or chemical hazards.* Warning statements on the flammability or explosive characteristics of the pesticide are required as follows:

Flash point	Required text
(A) PRESSURIZED CONTAINERS	
Flash point at or below 20° F; if there is a flashback at any valve opening.	Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130° F may cause bursting.
Flash point above 20° F and not over 80° F or if the flame extension is more than 18 in long at a distance of 6 in from the flame.	Flammable. Contents under pressure. Keep away from heat, sparks, and open flame. Do not puncture or incinerate container. Exposure to temperatures above 130° F may cause bursting.
All other pressurized containers	Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130° F may cause bursting.
(B) NONPRESSURIZED CONTAINERS	
At or below 20° F	Extremely flammable. Keep away from fire, sparks, and heated surfaces.
Above 20° F and not over 80° F	Flammable. Keep away from heat and open flame.
Above 80° F and not over 150° F	Do not use or store near heat or open flame.

(i) *Directions for Use*—(1) *General requirements*—(i) *Adequacy and clarity of directions.* Directions for use must be stated in terms which can be easily read and understood by the average person likely to use or to supervise the use of the pesticide. When followed, directions must be adequate to protect the public from fraud and from personal injury and to prevent unreasonable adverse effects on the environment.

(ii) *Placement of directions for use.* Directions may appear on any portion of the label provided that they are conspicuous enough to be easily read by the user of the pesticide product. Directions for use may appear on printed or graphic matter which accompanies the pesticide provided that:

(A) If required by the Agency, such printed or graphic matter is securely attached to each package of the pesticide, or placed within the outside wrapper or bag;

(B) The label bears a reference to the directions for use in accompanying leaflets or circulars, such as "See directions in the enclosed circular:" and

(C) The Administrator determines that it is not necessary for such directions to appear on the label.

(iii) *Exceptions to requirement for direction for use*—(A) Detailed directions for use may be omitted from labeling of pesticides which are intended for use only by manufacturers of products other than pesticide products in their regular manufacturing processes, provided that:

(*1*) The label clearly shows that the product is intended for use only in manufacturing processes and specifies the type(s) of products involved.

(*2*) Adequate information such as technical data sheets or bulletins, is available to the trade specifying the type of product involved and its proper use in manufacturing processes;

(*3*) The product will not come into the hands of the general public except after incorporation into finished products; and

(*4*) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment.

(B) Detailed directions for use may be omitted from the labeling of pesticide products for which sale is limited to physicians, veterinarians, or druggists, provided that:

(*1*) The label clearly states that the product is for use only by physicians or veterinarians;

(*2*) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment; and

(*3*) The product is also a drug and regulated under the provisions of the Federal Food, Drug and Cosmetic Act.

(C) Detailed directions for use may be omitted from the labeling of pesticide products which are intended for use only by formulators in preparing pesticides for sale to the public, provided that:

(*1*) There is information readily available to the formulators on the composition, toxicity, methods of use, applicable restrictions or limitations, and effectiveness of the product for pesticide purposes;

(*2*) The label clearly states that the product is intended for use only in manufacturing, formulating, mixing, or repacking for use as a pesticide and specifies the type(s) of pesticide products involved;

(*3*) The product as finally manufactured, formulated, mixed, or repackaged is registered; and

(*4*) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment.

(2) *Contents of Directions for Use.* The directions for use shall include the following, under the headings "Directions for Use":

(i) The statement of use classification as prescribed in 162.10(j) immediately under the heading "Directions for Use."

(ii) Immediately below the statement of use classification, the statement "It is a violation of Federal law to use this product in a manner inconsistent with its labeling."

(iii) The site(s) of application, as for example the crops, animals, areas, or objects to be treated.

(iv) The target pest(s) associated with each site.

(v) The dosage rate associated with each site and pest.

(vi) The method of application, including instructions for dilution, if required, and type(s) of application apparatus or equipment required.

(vii) The frequency and timing of applications necessary to obtain effective results without causing unreasonable adverse effects on the environment.

(viii) Specific limitations on reentry to areas where the pesticide has been applied, meeting the requirements concerning reentry provided by 40 CFR Part 170.

(ix) Specific directions concerning the storage and disposal of the pesticide and its container, meeting the requirements of 40 CFR Part 165. These instructions shall be grouped and appear under the heading "Storage and Disposal." This heading must be set in type of the same minimum sizes as required for the child hazard warning (See Table in § 162.10(h)(1)(iv).)

(x) Any limitations or restrictions on use required to prevent unreasonable adverse effects, such as:

(A) Required intervals between application and harvest of food or feed crops.

(B) Rotational crop restrictions.

(C) Warnings as required against use on certain crops, animals, objects, or in or adjacent to certain areas.

(D) [Reserved]

(E) For restricted use pesticides, a statement that the pesticide may be applied under the direct supervision of a certified applicator who is not physically present at the site of application but nonetheless available to the person applying the pesticide, unless the Agency has determined that the pesticide may only be applied under the direct supervision of a certified applicator who is physically present.

(F) Other pertinent information which the Administrator determines to be necessary for the protection of man and the environment.

(j) *Statement of Use Classification.* By October 22, 1976, all pesticide products must bear on their labels a statement of use classification as described in paragraphs (j)(1) and (2) of this section. Any pesticide product for which some uses are classified for general use and others for restricted use shall be separately labeled according to the labeling standards set forth in this subsection, and shall be marketed as separate products with different registration numbers, one bearing directions only for general use(s) and the other bearing directions for restricted use(s) except that, if a product has both restricted use(s) and general use(s), both of these uses may appear on a product labeled for restricted use. Such products shall be subject to the provisions of § 162.10(j)(2).

(1) *General Use Classification.* Pesticide products bearing directions for use(s) classified general shall be labeled with the exact words "General Classification" immediately below the heading "Directions for Use." And reference to the general classification that suggests or implies that the general utility of the pesticide extends beyond those purposes and uses contained in the Directions for Use will be considered a false or misleading statement under the statutory definitions of misbranding.

(2) *Restricted Use Classification.* Pesticide products bearing direction for use(s) classified restricted shall bear statements of restricted use classification on the front panel as described below:

(i) *Front panel statement of restricted use classification.* (A) At the top of the front panel of the label, set in type of the same minimum sizes as required for human hazard signal words (see table in § 162.10(h)(1)(iv)), and appearing with sufficient prominence relative to other text and graphic material on the front panel to make it unlikely to be overlooked under customary conditions of purchase and use, the statement "Restricted Use Pesticide" shall appear.

(B) Directly below this statement on the front panel, a summary statement of the terms of restriction imposed as a precondition to registration shall appear. If use is restricted to certified applicators, the following statement is required: "For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification." If, however, other regulatory restrictions are imposed, the Administrator will define the appropriate wording for the terms of restriction by regulation.

(k) Advertising. [Reserved]

[40 FR 28268, July 3, 1975; 40 FR 32329, Aug. 1, 1975; 40 FR 36571, Aug. 21, 1975, as amended at 43 FR 5786, Feb. 9, 1978]

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LABELING REQUIREMENTS OF THE FIFRA, AS AMENDED

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
1	Product name	All products	Front panel	Center front panel	
2	Company name and address	All products	None	Bottom front panel or end of label text	If registrant is not the producer, must be qualified by "Packed for . . .," "Distributed by. . .," etc.
3	Net contents	All products	None	Bottom front panel or end of label text	May be in metric units in addition to U.S. units
4	EPA Reg. No.	All products	None	Front panel	Must be in similar type size and run parallel to other type.
5	EPA Est. No.	All products	None	Front panel, immediately before or following Reg. No.	May appear on the container instead of the label.
6A	Ingredients statement	All products	Front panel	Immediately following product name	Text must run parallel with other text on the panel.
6B	Pounds/gallon statement	Liquid products where dosage given as lbs. ai/unit area	Front panel	Directly below the main ingredients statement	
7	Front panel precautionary statements	All products	Front panel		All front panel precautionary statements must be grouped together, preferably blocked.
7A	Keep Out of Reach of Children (Child hazard warning)	All products	Front panel	Above signal word	Note type size requirements.
7B	Signal word	All products	Front panel	Immediately below child hazard warning	Note type size requirements.

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
7C	Skull & crossbones and word POISON (in red)	All products which are Category I based on oral, dermal, or inhalation toxicity	Front panel	Both in close proximity to signal word	
7D	Statement of practical treatment	All products in Categories I, II, and III	Category I: Front panel unless referral statement is used. Others: Grouped with side panel precautionary statements.	Front panel for all.	
7E	Referral statement	All products where precautionary labeling appears on other than front panel.	Front panel		
8	Side/back panel precautionary statements	All products	None	Top or side of back panel preceding directions for use	Must be grouped under the headings in 8A, 8B, and 8C; preferably blocked.
8A	Hazards to humans and domestic animals	All products in Categories I, II, and III	None	Same as above	Must be preceded by appropriate signal word.
8B	Environmental hazards	All products	None	Same as above	Environmental hazards include bee caution where applicable.

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
8C	Physical or chemical hazards	All pressurized products, others with flash points under 150°F	None	Same as above	
9A	Restricted block	All restricted products	Top center of front panel	Preferably blocked	Includes a statement of the terms of restriction. The words "RESTRICTED USE PESTICIDE" must be same type size as signal word.
9C	Misuse statement	All products	Immediately following heading of directions for use		
10A	Reentry statement	All cholinesterase inhibitors	In the directions for use	Immediately after misuse statement	
10C	Storage and disposal block	All products	In the directions for use	Immediately before specific directions for use or at the end of directions for use	Must be set apart and clearly distinguishable from from other directions for use.
10D	Directions for use	All products	None	None	May be in metric as well as U.S. units

Appendix IV-3

PHYSICAL-CHEMICAL HAZARDS

Criteria	Required Label Statement
I. Pressurized Containers	
A. Flashpoint at or below 20°F; or if there is a flashback at any valve opening.	Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
B. Flashpoint above 20°F and not over 80°F; or if the flame extension is more than 18 inches long at a distance of 6 inches from the valve opening.	Flammable. Contents under pressure. Keep away from heat, sparks, and flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
C. ALL OTHER PRESSURIZED CONTAINERS	Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
II. Non-Pressurized Containers	
A. Flashpoint at or below 20°F.	Extremely flammable. Keep away from fire, sparks, and heated surfaces.
B. Flashpoint above 20°F and not over 80°F.	Flammable. Keep away from heat and open flame.
C. Flashpoint over 80°F and not over 150°F.	Do not use or store near heat and open flame.
D. Flashpoint above 150°F.	None required.

STORAGE INSTRUCTIONS FOR PESTICIDES

Heading:

All products are required to bear specific label instructions about storage and disposal. Storage and disposal instructions must be grouped together in the directions for use portion of the label under the heading STORAGE AND DISPOSAL. Products intended solely for domestic use need not include the heading "STORAGE AND DISPOSAL."

Storage Instructions:

All product labels are required to have appropriate storage instructions. Specific storage instructions are not prescribed. Each registrant must develop his own storage instructions, considering, when applicable, the following factors:

1. Conditions of storage that might alter the composition or usefulness of the pesticide. Examples could be temperature extremes, excessive moisture or humidity, heat, sunlight, friction, or contaminating substances or media.

2. Physical requirements of storage which might adversely affect the container of the product and its ability to continue to function properly. Requirements might include positioning of the container in storage, storage or damage due to stacking, penetration of moisture, and ability to withstand shock or friction.

3. Specifications for handling the pesticide container, including movement of container within the storage area, proper opening and closing procedures (particularly for opened containers), and measures to minimize exposure while opening or closing container.

4. Instructions on what to do if the container is damaged in any way, or if the pesticide is leaking or has been spilled, and precautions to minimize exposure if damage occurs.

5. General precautions concerning locked storage, storage in original container only, and separation of pesticides during storage to prevent cross-contamination of other pesticides, fertilizer, food, and feed.

6. General storage instructions for household products should emphasize storage in original container and placement in locked storage areas.

PESTICIDE DISPOSAL INSTRUCTIONS

The label of all products, except those intended solely for domestic use, must bear explicit instructions about pesticide disposal. The statements listed below contain the exact wording that must appear on the label of these products:

1. The labels of all products, except domestic use, must contain the statement, "Do not contaminate water, food, or feed by storage or disposal."

2. Except those products intended solely for domestic use, the labels of all products that contain active ingredients appearing on the "Acutely Hazardous" Commercial Pesticide Products List (RCRA "E" List) at the end of this appendix or are assigned to Toxicity Category I on the basis of oral or dermal toxicity, skin or eye irritation potential, or Toxicity Category I or II on the basis of acute inhalation toxicity must bear the following pesticide disposal statement:

> "Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance."

3. The labels of all products, except those intended for domestic use, containing active or inert ingredients that appear on the "Toxic" Commercial Pesticide Products List (RCRA "F" List) at the end of this appendix or meet any of the criteria in 40 CFR 261, Subpart C for a hazardous waste must bear the following pesticide disposal statement:

> "Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance."

4. Labels for all other products, except those intended for domestic use, must bear the following pesticide disposal statement:

> "Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility."

5. Products intended for domestic use only must bear the following disposal statement: "Securely wrap original container in several layers of newspaper and discard in trash."

Appendix IV-5
(continued)

Pesticides that are hazardous wastes under 40 CFR 261.33(e) and (f) when discarded.

"Acutely Hazardous" Commercial Pesticides (RCRA "E" List)

Active Ingredients:

Acrolein
Aldicarb
Aldrin
Allyl alcohol
Aluminum phosphide
4-Aminopyridine
Arsenic acid
Arsenic pentoxide
Arsenic trioxide
Calcium cyanide
Carbon disulfide
p-Chloroaniline
Cyanides (soluble cyanide salts, not specified elsewere)
Cyanogen chloride
2-Cyclohexyl-4,6-dinitrophenol
Dieldrin
0,0-Diethyl S-[2-ethylthio)ethyl] phosphorodithioate
    (disulfoton, Di-Syston)
0,0-Diethyl 0-pyrazinyl phosphorothioate (Zinophos)
Dimethoate
0,0-Dimethyl 0-p-nitrophenyl phosphorothioate (methyl parathion)
4,6-Dinitro-o-cresol and salts
4,6-Dinitro-o-cyclohexylphenol
2,4 Dinitrophenol
Dinoseb
Endosulfan
Endothall
Endrin
Famphur
Fluoroacetamide
Heptachlor
Hexanethyl tetraphosphate
Hydrocyanic acid
Hydrogen cyanide
Methomyl
alpha-Naphthylthiourea (ANTU)
Nicotine and salts
Octamethylpyrophosphoramide (OMPA, schradan)
Parathion

"Acutely Hazardous" Commercial Pesticides (RCRA "E" List)

Active Ingredients continued:

Phenylmercuric acetate (PMA)
Phorate
Potassium cyanide
Propargyl alcohol
Sodium azide
Sodium cyanide
Sodium fluoroacetate
Strychnine and salts
0,0,0,0-Tetraethyl dithiopyrophosphate (sulfotepp)
Tetraethyl pyrophosphate
Thallium sulfate
Thiofanox
Toxaphene
Warfarin
Zinc phosphide

"Toxic" Commercial Pesticide Products (RCRA "F" List)

Active Ingredients:

Acetone
Acrylonitrile
Amitrole
Benzene
Bis(2-ethylhexyl)pthalate
Cacodylic acid
Carbon tetrachloride
Chloral (hydrate)
Chlordane (technical)
Chlorobenzene
4-Chloro-m-cresol
Chloroform
o-Chlorophenol
4-Chloro-o-toluidine hydrochloride
Creosote
Cresylic acid
Cyclohexane
Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta[c,d]-pentalen-2-one
    (kepone, chlordecone)
1,2-Dibromo-3-chloropropane (DBCP)
Dibutyl phthalate
S-3,3-(Dichloroallyl diisopropylthiocarbamate (diallate, Avadex)
o-Dichlorobenzene
p-Dichlorobenzene
Dichlorodifluoromethane (Freon 12®)
3,5-Dichloro-N-(1,1-dimethyl-2-propynyl) benzamide (pronamide,Kerb)
Dichloro diphenyl dichloroethane (DDD)
Dichloro diphenyl trichloroethane (DDT)
Dichlorethyl ether
2,4-Dichlorophenoxyacetic, esters and salts (2,4-D)
1,2-Dichloropropane
1,3-Dichloropropane (Telone)
Dimethyl phthalate
Ethyl acetate
Ethyl 4,4'-dichlorobenzilate (chlorobenzilate)
Ethylene dibromide (EDB)
Ethylene dichloride
Ethylene oxide
Formaldehyde
Furfural
Hexachlorobenzene
Hexachlorocyclopentadiene
Hexachloroethane
Hydrofluoric acid

"Toxic" Commercial Pesticide Products (RCRA "F" List)

Active Ingredients continued:

Isobutyl alcohol
Lead acetate
Lindane
Maleic hydrazide
Mercury
Methyl alcohol
Methyl bromide
Methyl chloride
2,2'-Methylenebis (3,4,6-trichlorophenol) (hexachlorophene)
Methylene chloride
Methyl ethyl ketone
4-Methyl-2-pentanone (methyl isobutyl ketone)
Naphthalene
Nitrobenzene
p-Nitrophenol
Pentachloroethane
Pentachloronitrobenzene (PCNB)
Pentaclorophenol
Phenol
Phosphorodithioic acid, O,O-diethyl, methyl ester
Propylene dichloride
Pyridine
Resorcinol
Safrole
Selenium disulfide
Silvex
1,2,4,5-Tetrachlorobenzene
1,1,2,2-Tetrachloroethane
Tetrachloroethylene
2,3,4,6-Tetrachlorophenol
Thiram
Toluene
1,1,1-Trichloroethane
Trichloroethylene
Trichloromonofluoromethane (Freon 11®)
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)
Xylene

Appendix IV-5
(continued)

"Toxic" Commercial Pesticide Products (RCRA "F" List)

Inert Ingredients:

Acetone
Acetonitrile
Acetophenone
Acrylic acid
Aniline
Benzene
Chlorobenzene
Chloroform
Cyclohexane
Cyclohexanone
Dichlorodifluoromethane (Freon 12®)
Diethyl phthalate
Dimethylamine
Dimethyl phthalate
1,4-Dioxane
Ethylene oxide
Formaldehyde
Formic acid
Isobutyl alcohol
Meleic anhydride
Methyl alcohol (methanol)
Methyl ethyl ketone
Methyl methacrylate
Naphthalene
Saccharin and salts
Thiourea
Toluene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichlorofluoromethane (Freon 11®
Vinyl chloride
Xylene

CONTAINER DISPOSAL INSTRUCTIONS

The label of each product must bear container disposal instructions appropriate to the type of container.

1. Domestic use products must bear one of the following container disposal statements:

Container Type	Statement
Non-aerosol products (bottles, cans, jars)	Do not reuse container (bottle, can, jar). Rinse thoroughly before discarding in trash.
Non-aerosol products (bags)	Do not reuse bag. Discard bag in trash.
Aerosol products	Replace cap and discard containers in trash. Do not incinerate or puncture.

2. All other products must bear container disposal instructions, based on container type, listed below:

Container Type	Statement
Metal containers (non-aerosol)	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.
Plastic containers	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.
Glass containers	Triple rinse (or equivalent). Then dispose of in a sanitary landfill or by other approved state and local procedures.
Fiber drums with liners	Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by state and local authorities. If drum is contaminated and cannot be reused[1], dispose of in the same manner.
Paper and plastic bags	Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.
Compressed gas cylinders	Return empty cylinder for reuse (or similar wording)

[1] Manufacturer may replace this phrase with one indicating whether and how fiber drum may be reused.

This appendix provides sample labels for all currently acceptable pesticide products containing sodium or calcium hypochlorite as the sole active ingredient.

All proucts must bear labeling consistent with these standard labels in both content and format. The labels must be customized by individual applicants as specified in Section I(F), Section IV and Appendix IV-1 of this document. It is very important to note that the use directions in the standard labels have been tailored for 12.5% sodium hypochlorite and 65.0% calcium hypochlorite and a dilution conversion chart has been provided for 10.0%, 9.2%, and 5.25% sodium hypochlorite. Products with a percent A.I. which differs from these four values must calculate the correct dosage (see Section I(F)(5)) to obtain the required parts per million (ppm) of available chlorine.

The current list of standard labels for sodium or calcium hypochlorite as sole active ingredients is presented in Table 3 followed by all of the labels listed in the Table. Applicants with products that fall within specifications stated in Table 3 should go directly to the label at the referenced page number.

Applicants are advised that the label directions which follow Table 1 are generic in nature and are not intended to list every specific registered site of these chemicals. The label directions are written in this fashion because many apparently dissimilar sites can be functionally identified as part of a larger single group. For example, a generic site such as non-porous hard surfaces includes a multiplicity of specific surfaces (tile floors and walls, sinks, toilet bowls, etc.) that fall under this generic classification but are too numerous to list in a single label (See Section I(E)(3)).

In the interests of flexibility, the Agency will permit manufacturers to alter use directions to indicate the specific surfaces that will be treated with their product. Thus, the applicant and registrant is permitted to alter the use directions of the master standard labels in two ways: (1) alter the dosages to allow for a product that differs in concentration from the standard label and (2) add specific surfaces to be treated. You should contact the Product Manager if questions arise about the directions for use.

Index to and Description of Standard Labels

Product No.	Chemical	% A.I.	Form	Tox. Cat.	Page
End-Use Products					
- 20001	Sodium Hypochlorite	12.5	Liquid	I	93
- 20002	Sodium Hypochlorite	10	Liquid	I	-
- 20003	Sodium Hypochlorite	9.2	Liquid	I	-
- 20004	Sodium Hypochlorite	5.25	Liquid	I	-
- 20005	Calcium Hypochlorite	65	Powder	I	111
- 20006	Calcium Hypochlorite	65	Tablet	I	-
Manufacturing-Use Products					
- 20007	Sodium Hypochlorite	12.5	Liquid	I	108
- 20008	Calcium Hypochlorite	65	Powder	I	127
- 20009	Calcium Hypochlorite	65	Tablet	I	-

The Agency has determined that these standard labels will accomodate approximately 95% of all single active sodium hypochlorite or solid calcium hypochlorite products which have been registered or which will be preposed for registration under the general registration standard. Hence the few products which do not conform to the formulations which correspond to the labels as specified in this standard, will be registered or reregistered in accordance with conventional registration procedures.

Appendix IV-7
(continued)

Dilution Conversion Chart For Sodium Hypochlorite Solution

Start up, or superchlorination of swimming pools dosage are usually 52 oz. to 104 oz. per 10,000 gallons of water to provide 5 to 10 ppm available chlorine for 12.5% Sodium Hypochlorite. See chart for amounts for other label declarations. Maintain dosage are usually 11 oz. of product per 10,000 gallons of water.

amount of water	available chlorine	12.5%	10%	9.2%	5.25%
10,000 gals.	1 ppm	11 oz.	12 oz.	14 oz.	25 oz.
10,000 gals.	5 ppm	52 oz.	54 oz.	58 oz.	128 oz.
10,000 gals.	10 ppm	104 oz.	108 oz.	116 oz.	256 oz.

Dosage of Spas/Hot-Tubs maintain dosage 5 oz. of product per 1000 gallons of water to provide 5 ppm available chlorine. Shock treat dosage 8 oz. of product per 500 gallons of water. Daily use of product 3 oz. per 1000 gallon of water.

amount of water	available chlorine	12.5%	10%	9.2%	5.25%
1000 gal.	3 ppm	3 oz.	4 oz.	5 oz.	6 oz.
1000 gal.	5 ppm	5 oz.	5 oz.	8 oz.	10 oz.

For food contact surfaces available chlorine must be maintained between 100 ppm to 200 ppm.

amount of water	Available Chlorine	12.5%	10%	9.2%	5.25
20 gal.	50 ppm	1 oz.	1.5 oz.	2 oz	2.5 oz.
10 gal.	100 ppm	1 oz.	1.5 oz.	2 oz	2.5 oz.
10 gal.	200 ppm	2 oz.	3 oz.	4 oz.	5 oz.
5 gal.	100 ppm	1/2 oz.	1 oz.	1 1/4 oz.	1-1/4 oz.
5 gal.	200 ppm	1 oz.	1-1/2 oz.	2 oz.	2-1/4 oz.

Appendix IV-7
(continued)

For disinfectant of floors walls, ceiling and other similar hard-non porous surfaces. The dosage must be maintain between 600 to 1000 ppm.

amount of water	available chlorine	12.5%	10%	9. 2%	5.25%
10 gal.	600 ppm	6 oz.	8 oz.	10 oz.	15%
10 gal.	1000 ppm	11 oz.	12 oz.	15 oz.	25%
5 gal.	600 ppm	3 oz.	4 oz.	10 oz.	7 1/2 oz.
5 gal.	1000 ppm	5 1/2 oz.	6 oz.	7 1/2 oz.	12 1/2 oz.

Public Systems: Disinfection of drinking water: Mix a ration of 1 oz. to 2000 gallons of water to provide at least 0.2 ppm and no more that 0.6 ppm. Individual water system: Emergency disinfection: 8 drops to 20 gallon of water.

amount of water	available chlorine	12.5%	10%	9.2%	5.25%
2000 gal.	0.2 to 0.6	1 oz.	2 oz.	2 1/2 oz.	4 oz.
20 gal.	0.2 to 0.6	8 drops	10 drops	12 drops	20 drops

PRODUCT NAME

ACTIVE INGREDIENT:
Sodium Hypochlorite......................12.5%
INERT INGREDIENTS:.........................87.5%

KEEP OUT OF REACH OF CHILDREN

DANGER

STATEMENT OF PRACTICAL TREATMENT (FIRST AID)*

IF CONTACT WITH EYES OCCURS, flush with water for at least 15 minutes. Get prompt medical attention.

IF CONTACT WITH SKIN OCCURS, wash with plenty of soap and water.

IF SWALLOWED, drink large quantities of milk or gelatin solution, if these are not available, drink large quantities of water. DO NOT give vinegar or other acids. DO NOT induce vomiting. Get prompt medical attention.

(See additional precautions on side panel.)

Manufactured by:
ABC Chemical Corporation
P.O. Box 99
New York, New York
99999

EPA REG NO. 10237-200C1 EPA EST 10237-KS-1
NET CONTENTS:

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*It is only suggested that First Aid statements be placed on the front panel. If placed on another panel (e.g. the back panel), the label must have the referral statement, "See other precautions on back panel".

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Corrosive, may cause severe skin and eye irritation or chemical burns to broken skin. Causes eye damage. Wear safety glasses or goggles and rubber gloves when handling this product. Wash after handling. Avoid breathing vapors. Vacate poorly ventilated areas as soon as possible. Do not return until strong odors have dissipated.

ENVIRONMENTAL HAZARDS

This product is toxic to fish. Do not discharge into lakes, streams, ponds or public waterways unless in accordance with a NPDES permit. For guidance, contact the regional office of the U.S. Environmental Protection Agency.

PHYSICAL OR CHEMICAL HAZARDS

STRONG OXIDIZING AGENT: Mix only with water according to label directions. Mixing this product with chemicals (e.g. ammonia, acids, detergents, etc.) or organic matter (e.g. urine, feces, etc.) will release chlorine gas which is irritating to eyes, lungs and mucous membranes.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

NOTE: This product degrades with age. Use a chlorine test kit and increase dosage, as necessary, to obtain the required level of available chlorine.

STORAGE AND DISPOSAL

Store this product in a cool dry area, away from direct sunlight and heat to avoid deterioration. In case of spill, flood areas with large quantities of water. Product or rinsates that cannot be used should be diluted with water before disposal in a sanitary sewer. Do not reuse container but place in trash collection. Do not contaminate food or feed by storage, disposal or cleaning of equipment.

SWIMMING POOL WATER DISINFECTION

For a new pool or spring start-up, superchlorinate with 52 to 104 oz. of product for each 10,000 gallons of water to yield 5 to 10 ppm available chlorine by weight. Check the level of available chlorine with a test kit. Adjust and maintain pool water pH to between 7.2 to 7.6. Adjust and maintain the alkalinity of the pool to between 50 to 100 ppm.

To maintain the pool, add manually or by a feeder device 11 oz. of this product for each 10,000 gallons of water to yield an available chlorine residual between 0.6 to 1.0 ppm by weight. Stabilized pools should maintain a residual of 1.0 to 1.5 ppm available chlorine. Test the pH, available chlorine residual and alkalinity of the water frequently with appropriate test kits. Frequency of water treatment will depend upon temperature and number of swimmers.

Every 7 days, or as necessary, superchlorinate the pool with 52 to 104 oz. of product for each 10,000 gallons of water to yield 5 to 10 ppm available chlorine by weight. Check the level of available chlorine with a test kit. Do not reenter pool until the chlorine residual is between 1.0 to 3.0 ppm.

At the end of the swimming pool season or when water is to drained from the pool, chlorine must be allowed to dissipate from treated pool water before discharge. Do not chlorinate the pool within 24 hours prior to discharge.

WINTERIZING POOLS - While water is still clear & clean , apply 3 oz. of product per 1000 gallons, while filter is running, to obtain a 3 ppm available chlorine residual, as detemined by a suitable test kit. Cover pool, prepare heater, filter and heater components for winter by following manufacturers' instructions.

SPAS, HOT-TUBS, IMMERSION TANKS, ETC.

SPAS/HOT-TUBS - Apply 5 oz. of product per 1000 gallons of water to obtain a free available chlorine concentration of 5 ppm, as determined by a suitable chlorine test kit. Adjust and maintain pool water pH to between 7.2 and 7.8. Some oils, lotions, fragrances, cleaners, etc. may cause foaming or cloudy water as well as reduce the efficiency of the product.

To maintain the water, apply 5 oz. of product per 1000 gallons of water over the surface to maintain a chlorine concentration of 5 ppm.

After each use, shock treat with 8 oz. of this product per 500 gallons of water to control odor and algae.

During extended periods of disuse, add 3 oz. of product daily per 1000 gallons of water to maintain a 3 ppm chlorine concentration.

HUBBARD AND IMMERSION TANKS - Add 5 oz. of this product per 200 gallons of water before patient use to obtain a chlorine residual of 25 ppm, as determined by a suitable test kit. Adjust and maintain the water pH to between 7.2 and 7.6. After each use drain the tank. Add 5 oz. to a bucket of water and circulate this solution through the agitator of the tank for 15 minutes and then rinse out the solution. Clean tank thoroughly and dry with clean cloths.

HYDROTHERAPY TANKS - Add 1 oz. of this product per 1000 gallons of water to obtain a chlorine residual of 1 ppm, as determined by a suitable chlorine test kit. Pool should not be entered until the chlorine residual is below 3 ppm. Adjust and maintain the water pH to between 7.2 and 7.6. Operate pool filter continuously. Drain pool weekly, and clean before refilling.

SANITIZATION OF NONPOROUS FOOD CONTACT SURFACES

RINSE METHOD - A solution of 100 ppm available chlorine may be used in the sanitizing solution if a chlorine test kit is available. Solutions containing an initial concentration of 100 ppm available chlorine must be tested and adjusted periodically to insure that the available chlorine does not drop below 50 ppm. Prepare a 100 ppm sanitizing solution by thoroughly mixing 1 oz. of this product with 10 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 2 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight.

Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. If solution contains less than 50 ppm available chlorine, as determined by a suitable test kit, either discard the solution or add sufficient product to reestablish a 200 ppm residual. Do not rinse equipment with water after treatment and do not soak equipment overnight.

Sanitizers used in automated systems may be used for general cleaning but may not be re-used for sanitizing purposes.

IMMERSION METHOD - A solution of 100 ppm available chlorine may be used in the sanitizing solution if a chlorine test kit is available. Solutions containing an initial concentration of 100 ppm available chlorine must be tested and adjusted periodically to insure that the available chlorine does not drop below 50 ppm. Prepare a 100 ppm sanitizing solution by thoroughly mixing 1 oz. of this product with 10 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 2 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight.

Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. If solution contains less than 50 ppm available chlorine, as determined by a suitable test kit, either discard the solution or add sufficient product to reestablish a 200 ppm residual. Do not rinse equipment with water after treatment.

Sanitizers used in automated systems may be used for general cleaning but may not be re-used for sanitizing purposes.

FLOW/PRESSURE METHOD - Disassemble equipment and throughly clean after use. Assemble equipment in operating position prior to use. Prepare a volume of a 200 ppm available chlorine sanitizing solution equal to 110% of volume capacity of the equipment by mixing the product in a ratio of 2 oz. product with 10 gallons of water. Pump solution through the system until full flow is obtained at all extremities, the system is completely filled with the sanitizer and all air is removed from the system. Close drain valves and hold under pressure for at least 2 minutes to insure contact with all internal surfaces. Remove some cleaning solution from drain valve and test with a chlorine test kit. Repeat entire cleaning/sanitizing process if effluent contains less than 50 ppm available chlorine. Rinse system with potable water prior to use.

CLEAN-IN-PLACE METHOD - Throughly clean equipment after use. Prepare a volume of a 200 ppm available chlorine sanitizing solution equal to 110% of volume capacity of the equipment by mixing the product in a ratio of 2 oz. product with 10 gallons of water. Pump solution through the system until full flow is obtained at all extremities, the system is completely filled with the sanitizer and all air is removed from the system. Close drain valves and hold under pressure for at least 10 minutes to insure contact with all internal surfaces. Remove some cleaning solution from drain valve and test with a chlorine test kit. Repeat entire cleaning/sanitizing process if effluent contains less than 50 ppm available chlorine. Rinse system with potable water prior to use.

SPRAY/FOG METHOD - Preclean all surfaces after use. Use a 200 ppm available chlorine solution to control bacteria, mold or fungi and a 600 ppm solution to control bacteriophage. Prepare a 200 ppm sanitizing solution of sufficient size by thoroughly mixing the product in a ratio of 2 oz. product with 10 gallons of water. Prepare a 600 ppm solution by thoroughly mixing the product in a ratio of 6 oz. product with 10 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Always empty and rinse spray/fog equipment with potable water after use. Throughly spray or fog all sufaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours. Prior to using equipment, rinse all surfaces treated with a 600 ppm solution with a 200 ppm solution.

SANITIZATION OF POROUS FOOD CONTACT SURFACES

RINSE METHOD - Prepare a sanitizing solution by throughly mixing 6 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. Rinse equipment with water after treatment and do not soak equipment overnight.

IMMERSION METHOD - Prepare a sanitizing solution by throughly mixing, in an immersion tank, 6 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Rinse equipment with water after treatment.

SPRAY/FOG METHOD - Preclean all surfaces after use. Prepare a 600 ppm available chlorine sanitizing solution of sufficient size by throuoghly mixing the product in a ratio of 6 oz. product with 10 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Always empty and rinse spray/fog equipment with potable water after use. Throughly spray or fog all sufaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours. Prior to using equipment, rinse all surfaces with a 200 ppm available chlorine solution. Prepare a 200 ppm sanitizing solution by thoroughly mixing 2 oz. of this product with 10 gallons of water.

SANITIZATION OF NONPOROUS NON-FOOD CONTACT SURFACES

RINSE METHOD - Prepare a sanitizing solution by throughly mixing 2 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.

IMMERSION METHOD - Prepare a sanitizing solution by throughly mixing, in an immersion tank, 2 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

SPRAY/FOG METHOD - Preclean all surfaces after use. Prepare a 200 ppm available chlorine sanitizing solution of sufficient size by throuoghly mixing the product in a ratio of 2 oz. product with 10 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. prior to using equipment, throughly spray or fog all sufaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours.

DISINFECTION OF NONPOROUS NON-FOOD CONTACT SURFACES

RINSE METHOD - Prepare a disinfecting solution by throughly mixing 6 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the disinfecting solution, maintaining contact with the solution for at least 10 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.

IMMERSION METHOD - Prepare a disinfecting solution by throughly mixing, in an immersion tank, 6 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the disinfecting solution for at least 10 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

SANITIZATION OF POROUS NON-FOOD CONTACT SURFACES

RINSE METHOD - Prepare a sanitizing solution by throughly mixing 6 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.

IMMERSION METHOD - Prepare a sanitizing solution by throughly mixing, in an immersion tank, 6 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

SPRAY/FOG METHOD - After cleaning, sanitize non-food contact surfaces with 600 ppm available chlorine by throuoghly mixing the product in a ratio of 6 oz. of this product with 10 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Always empty and rinse spray/fog equipment with potable water after use. prior to using equipment, throughly spray or fog all sufaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours.

SEWAGE & WASTEWATER EFFLUENT TREATMENT

The disinfection of sewage effluent must be evaluated by determining the total number of coliform bacteria and/or fecal coliform bacteria, as determined by the Most Probable Number (MPN) procedure, of the chlorinated effluent has been reduced to or below the maximum permited by the controlling regulatory jurisdiction.

On the average, satisfactroy disinfection of secondary wastewater effluent can be obtained when the chlorine residual is 0.5 ppm after 15 minutes contact. Although the chlorine residual is the critical critical factor in disinfection, the importance of correlating chlorine residual with bacterial kill must be emphasized. The MPN of the effluent, which is directly related to the water quality standards requirements, should be the final and primary standard and the chlorine residual should be considered an operating standard valid only to the extent verified by the coliform quality of the effluent.

The following are critical factors affecting wastewater disinfection.

1. Mixing: It is imperative that the product and the wastewater be instantaneously and completly flash mixed to assure reaction with every chemically active soluble and particulate component of the wastewater.

2. Contacting: Upon flash mixing, the flow through the system must be maintained.

3. Dosage/Residual Control: Successful disinfection is extremely dependent on response to fluctuating chlorine demand to maintain a

predetermined, desirable chlorine level. Secondary effluent should contain 0.2 to 1.0 ppm chlorine residual after a 15 to 30 minute contact time. A reasonable average of residual chlorine is 0.5 ppm after 15 minutes contact time.

SEWAGE AND WASTEWATER TREATMENT

EFFLUENT SLIME CONTROL - Apply a 100 to 1000 ppm available chlorine solution at a location which will allow complete mixing. Prepare this solution by mixing 10 to 100 oz. of this product with 100 gallons of water. Once control is evident, apply a 15 ppm available chlorine solution. Prepare this solution by mixing 3 oz. of this product with 100 gallons of water.

FILTER BEDS - SLIME CONTROL: Remove filter from service, drain to a depth of 1 ft. above filter sand, and add 80 oz. of product per 20 sq/ft evenly over the surface. Wait 30 minutes before draining water to a level that is even with the top of the filter. Wait for 4 to 6 hours before completely draining and backwashing filter.

DISINFECTION OF DRINKING WATER (EMERGENCY/PUBLIC/INDIVIDUAL SYSTEMS)

PUBLIC SYSTEMS: Mix a ratio of 1 oz. of this product to 100 gallons of water. Begin feeding this solution with a hypochlorinator until a free available chlorine residual of at least 0.2 ppm and no more than 0.6 ppm is attained throughout the distribution system. Check water frequently with a chlorine test kit. Bacteriological sampling must be conducted at a frequency no less than that prescribed by the National Interim Primary Drinking Water Regulations. Contact your local Health Department for further details.

INDIVIDUAL SYSTEMS: DUG WELLS Upon completion of the casing (lining) wash the interior of the casing (lining) with a 100 ppm available chlorine solution using a stiff brush. This solution can be made by throughly mixing 1 oz. of this product into 10 gallons of water. After covering the well, pour the sanitizing solution into the well through both the pipesleeve opening and the pipeline. Wash the exterior of the pump cylinder also with the sanitizing solution. Start pump and pump water until strong odor of chlorine in water is noted. Stop pump and wait at least 24 hours. After 24 hours flush well until all traces of chlorine have been removed from the water. Consult your local Health Department for further details.

INDIVIDUAL WATER SYSTEMS: DRILLED, DRIVEN & BORED WELLS Run pump until water is as free from turbity as possible. Pour a 100 ppm available chlorine sanitizing solution into the well. This solution can be made by throughly mixing 1 oz. of this product into 10 gallons of water. Add 5 to 10 gallons of clean, chlorinted water to the well in order to force the sainizer into the rock formation. Wash the exterior of pump cylinder with the sanitizer. Drop pipeline into well, start pump and pump water until strong odor of chlorine in water is noted. Stop pump and wait at least 24 hours. After 24 hours flush well until all traces of chlorine have been removed from the water. Deep wells with high water levels may necessitate the use of special methods for introduction of the sanitizer into the well. Consult your local Health Department for further details.

INDIVIDUAL WATER SYSTEMS: FLOWING ARTESIAN WELLS Artesian wells generally do not require disinfection. If analyses indicate persistant contamination, the well should be disinfected. Consult your local Health Department for further details.

EMERGENCY DISINFECTION - When boiling of water for 1 minute is not practical, water can be made potable by using this product. Prior to addition of the sanitizer, remove all suspended material by filtration or by allowing it to settle to the bottom. Decant the clarified, contaminated water to a clean container and add I drop of this product to 20 gallons of water. Allow the treated water to stand for 30 minutes. Properly treated water should have a slight chlorine odor, if not, repeat dosage and allow the water to stand an additional 15 minutes. The treated water can then be made palatable by pouring it between clean containers for several times.

PUBLIC WATER SYSTEMS

RESERVOIRS - ALGAE CONTROL: Hypochlorinate streams feeding the reservoir. Suitable feeding points should be selected on each stream at least 50 yards upstream from the points of entry into the reservoir.

MAINS - Thoroughly flush section to be sanitized by discharging from hydrants. Permit a water flow of at least 2.5 feet per minute to continue under pressure while injecting this product by means of a hypochlorinator. Stop water flow when a chlorine residual test of 50 ppm is obtained at the low pressure end of the new main section after a 24 hour retention time. When chlorination is completed, the system must be flushed free of all heavily chlorinated water.

NEW TANKS, BASINS, ETC. - Remove all physical soil from surfaces. Place 20 oz. of this product for each 5 cubic feet of working capacity (500 ppm available chlorine). Fill to working capacity and allow to stand for at least 4 hours. Drain and flush with potable water and return to surface.

NEW FILTER SAND - Apply 80 oz. of this product for each 150 to 200 cubic feet of sand. The action of the product dissolving as the water passes through the bed will aid in sanitizing the new sand.

NEW WELLS - Flush the casing with a 50 ppm available chlorine solution of water containing 5 oz. of this product for each 100 gallons of water. The solution should be pumped or fed by gravity into the well after thorough mixing with agitation. The well should stand for several hours or overnight under chlorination. It may then be pumped until a representative raw water sample is obtained. Bacterial examination of the water will indicate whether further treatment is necessary.

EXISTING EQUIPMENT - Remove equipment from service, thoroughly clean surfaces of all physical soil. Sanitize by placing 21 oz. of this product for each 5 cubic feet capacity (approximately 500 ppm available chlorine). Fill to working capacity and let stand at least 4 hours. Drain and place in service. If the previous treatment is not practical, surfaces may be sprayed with a solution containing 5 oz. of this product for each 5 gallons of water (approximately 1000 ppm available chlorine). After drying, flush with water and return to service.

EMERGENCY DISINFECTION AFTER FLOODS

WELLS - Thoroughly flush contaminated casing with a 500 ppm available chlorine solution. Prepare this solution by mixing 5 oz. of this product with 10 gallons of water. Backwash the well to increase yield and reduce turbidity, adding sufficient chlorinating solution to the backwash to produce a 10 ppm available chlorine residual, as determined by a chlorine test kit. After the turbididty has been reduced and the casing has been treated, add sufficient chlorinating solution to produce a 50 ppm available chlorine residual. Aggitate the well water for several hours and take a representative water sample. Retreat well if water samples are biologically unacceptable.

RESERVOIRS - In case of contamination by overflowing streams, establish hypochlorinating stations upstream of the reservior. Chlorinate the inlet water until the entire reservior obtains a 0.2 ppm available chlorine residual, as determined by a suitable chlorine test kit. In case of contamination from surface drainage, apply sufficient product directly to the reservior to obtain a 0.2 ppm available chlorine residual in all parts of the reservior.

BASINS, TANKS, FLUMES, ETC. - Thoroughly clean all equipment, then apply 20 oz. of product per 5 cu. ft. of water to obtain 500 ppm available chlorine, as determined by a suitable test kit. After 24 hours drain, flush, and return to service. If the previous method is not suitable, spray or flush the equipment with a solution containing 5 oz. of this product for each 5 gallons of water (1000 ppm available chlorine). Allow to stand for 2 to 4 hours, flush and return to service.

FILTERS - When the sand filter needs replacement, apply 80 oz. of this product for each 150 to 200 cubic feet of sand. When the filter is severely contaminated, additional product should be distributed over the surface at the rate of 80 oz. per 20 sq. ft.. Water should stand at a depth of 1 foot above the surface of the filter bed for 4 to 24 hours. When filter beds can be backwashed of mud and silt, apply 80 oz. of this product per each 50 sq. ft., allowing the water to stand at a depth of 1 foot above the filter sand. After 30 minutes, drain water to the level of the filter. After 4 to 6 hours drain, and proceed with normal backwashing.

DISTRIBUTION SYSTEM - Flush repaired or replaced section with water. Establish a hypochlorinating station and apply sufficient product until a consistent available chlorine residual of at least 10 ppm remains after a 24 hour retention time. Use a chlorine test kit.

EMERGENCY DISINFECTION AFTER FIRES

CROSS CONNECTIONS OR EMERGENCY CONNECTIONS - Hypochlorination or gravity feed equipment should be set up near the intake of the untreated water supply. Apply sufficient product to give a chlorine residual of at least 0.1 to 0.2 ppm at the point where the untreated supply enters the regular distribution system. Use a chlorine test kit.

EMERGENCY DISINFECTION AFTER DROUGHTS

SUPPLEMENTARY WATER SUPPLIES - Gravity or mechanical hypochlorite feeders should be set up on a supplementary line to dose the water to a minimum chlorine residual of 0.2 ppm after a 20 minute contact time. Use a chlorine test kit.

WATER SHIPPED IN BY TANKS, TANK CARS, TRUCKS, ETC. - Thoroughly clean all containers and equipment. Spray a 500 ppm available chlorine solution and rinse with potable water after 5 minutes. This solution is made by mixing 5 oz. of this product for each 10 gallons of water. During the filling of the containers, dose with sufficient amounts of this product to provide at least a 0.2 ppm chlorine residual. Use a chlorine test kit.

EMERGENCY DISINFECTION AFTER MAIN BREAKS

MAINS - Before assembly of the repaired section, flush out mud and soil. Permit a water flow of at least 2.5 feet per minute to continue under pressure while injecting this product by means of a hypochlorinator. Stop water flow when a chlorine residual test of 50 ppm is obtained at the low pressure end of the new main section after a 24 hour retention time. When chlorination is completed, the system must be flushed free of all heavily chlorinated water.

COOLING TOWER/EVAPORATIVE CONDENSER WATER

SLUG FEED METHOD - Initial Dose: When system is noticably fouled, apply 52 to 104 oz. of this product per 10,000 gallons of water in the system to obtain from 5 to 10 ppm available chlorine. Repeat until control is achieved.

Subsequent Dose: When microbial control is evident, add 11 oz. of this product per 10,000 gallons of water in the system daily, or as needed to maintain control and keep the chlorine residual at 1 ppm. Badly fouled systems must be cleaned befor treatment is begun.

INTERMITTENT FEED METHOD - Initial Dose: When system is noticably fouled, apply 52 to 104 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Apply half (or 1/3, 1/4, or 1/5) of this intial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blowdown.

Subsequent Dose: When microbial control is evident, add 11 oz. of this product per 10,000 gallons of water in the system to obtain a 1 ppm residual. Apply half (or 1/3, 1/4, or 1/5) of this intial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blowdown. Badly fouled systems must be cleaned before treatment is begun.

CONTINUOUS FEED METHOD - Initial Dose: When system is noticably fouled, apply 52 to 104 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine.

Subsequent Dose: Maintain this treatment level by starting a continuous feed of 1 oz. of this product per 1,000 gallons of water lost by blowdown to maintain a 1 ppm residual. Badly fouled systems must be cleaned before treatment is begun.

BRIQUETTES OR TABLETS - Initially slug dose the system with 52 oz. of this product per 10,000 gallons of water in the system. Badly fouled systems must be cleaned before treatment is begun.

Subsequent Dose: When microbial control is evident, add 11 oz. of this product per 10,000 gallons of water in the system daily, or as needed to maintain control and keep the chlorine residual at 1 ppm. Badly fouled systems must be cleaned before treatment is begun.

LAUNDRY SANITIZERS

Household Laundry Sanitizers

IN SOAKING SUDS - Thoroughly mix 2 oz. of this product to 10 gallons of wash water to provide 200 ppm available chlorine. Wait 5 minutes, then add soap or detergent. Immerse laundry for at least 11 minutes prior starting the wash/rinse cycle.

IN WASHING SUDS - Thoroughly mix 2 oz. of this product to 10 gallons of wash water containing clothes to provide 200 ppm available chlorine. Wait 5 minutes, then add soap or detergent and start the wash/rinse cycle.

Commercial Laundry Sanitizers

Wet fabrics or clothes should be spun dry prior to sanitization. Thoroughly mix 2 oz. of this product with 10 gallons of water to yield 200 ppm available chlorine. Promptly after mixing the sanitizer, add the solution into the prewash prior to washing fabrics/clothes in the regular wash cycle with a good detergent. Test the level of available chlorine, if solution has been allowed to stand. Add more of this product if the the available chlorine level has dropped below 200 ppm.

FARM PREMISES

Remove all animals, poultry, and feed from premises, vehicles, and enclosures. Remove all litter and manure from floors, walls and surfaces of barns, pens, stalls, chutes and other facilities occupied or transverse by animals or poultry. Empty all troughs, racks and other feeding and watering appliances. Throughly clean all sufaces with soap or detergent and rinse with water. To disinfect, saturate all surfaces with a solution of at least 1000 ppm available chlorine for a period of 10 minutes. A 1000 ppm solution can be made by thoroughly mixing 11 oz. of this product with 10 gallons of water. Immerse all halters, ropes and other types of equipment used in handling and restraining animals or poultry, as well as the cleaned forks, shovels and scrapers used for removing litter and manure. Ventilate buildings, cars, boats and other closed spaces. Do not house livestaock or poultry or employ equipment until chlorine has been dissipated. All treated feed racks, mangers, troughs, automatic feeders, fountains and waterers must be rinsed with potable water before reuse.

PULP AND PAPER MILL PROCESS WATER SYSTEMS

SLUG FEED METHOD - Initial Dose: When system is noticably fouled, apply 52 to 104 oz. of this product per 10,000 gallons of water in the system to obtain from 5 to 10 ppm available chlorine. Repeat until control is achieved.

Subsequent Dose: When microbial control is evident, add 11 oz. of this product per 10,000 gallons of water in the system daily, or as needed to maintain control and keep the chlorine residual at 1 ppm. Badly fouled systems must be cleaned befor treatment is begun.

INTERMITTENT FEED METHOD - Initial Dose: When system is noticably fouled, apply 52 to 104 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Apply half (or 1/3, 1/4, or 1/5) of this intial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blowdown.

Subsequent Dose: When microbial control is evident, add 11 oz. of this product per 10,000 gallons of water in the system to obtain a 1 ppm residual. Apply half (or 1/3, 1/4, or 1/5) of this intial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blowdown. Badly fouled systems must be cleaned before treatment is begun.

CONTINUOUS FEED METHOD - Initial Dose: When system is noticably fouled, apply 52 to 104 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine.

Subsequent Dose: Maintain this treatment level by starting a continuous feed of 1 oz. of this product per 1,000 gallons of water lost by blowdown to maintain a 1 ppm residual. Badly fouled systems must be cleaned before treatment is begun.

BRIQUETTES OR TABLETS - Initially slug dose the system with 52 oz. of this product per 10,000 gallons of water in the system. Badly fouled systems must be cleaned before treatment is begun.

Subsequent Dose: When microbial control is evident, add 11 oz. of this product per 10,000 gallons of water in the system daily, or as needed to maintain control and keep the chlorine residual at 1 ppm. Badly fouled systems must be cleaned before treatment is begun.

AGRICULTURAL USES

POST-HARVEST PROTECTION - Potatoes can be sanitized after cleaning and prior to storage by spraying with a sanitizing solution at a level of 1 gallon of sanitizing solution per tons of potatoes. Thoroughly mix 1 oz. of this product to 2 gallons of water to obtain 500 ppm available chlorine.

Disinfect leafcutting bee cells and bee boards by immersion in a solution containing 1 ppm available chlorine for 3 minutes. Allow cells to drain for 2 minutes and dry for 4 to 5 hours or until no chlorine odor can be detected. This solution is made by thoroughly mix 1 Tsp. of this product to 100 gallons of water. The bee domicile is disinfected by spraying with a 0.1 ppm solution until all surfaces are thoroughly wet. Allow the domicile to dry until all chlorine odor has dissipated.

FOOD EGG SANITIZATION - Thoroughly clean all eggs. Thoroughly mix 2 oz. of this product with 10 gallons of warm water to produce a 200 ppm available chlorine solution. The sanitizer temperature should not exceed 130° F. Spray the warm sanitizer so that the eggs are thoroughly wetted. Allow the eggs to thoroughl dry before casing or breaking. Do not apply a potable water rinse. The solution should not be re-used to sanitize eggs.

FRUIT & VEGETABLE WASHING - Thoroughly clean all fruits and vegetables in a wash tank. Thoroughly mix 5 oz. of this product in 200 gallons of water to make a sanitizing solution of 25 ppm available chlorine. After draining the tank, submerge fruit or vegetables for 2 minutes in a second wash tank containing the recirculating sanitizing solution. Spray rinse vegatables with the sanitizing solution prior to packaging. Rinse fruit with potable water only prior to packaging.

AQUACULTURAL USES

FISH PONDS - Remove fish from ponds prior to treatment. Thoroughly mix 103 oz. of this product to 10,000 gallons of water to obtain 10 ppm available chlorine.

Add more product to the water if the available chlorine level is below 1 ppm after 5 minutes. Return fish to pond after the available chlorine level reaches zero.

FISH POND EQUIPMENT - Thoroughly clean all equipment prior to treatment. Thoroughly mix 2 oz. of this product to 10 gallons of water to obtain 200 ppm available chlorine. Porous equipment should soak for one hour.

MAINE LOBSTER PONDS - Remove lobsters, seaweed etc. from ponds prior to treatment. Drain the pond. Thoroughly mix 6,200 oz. of this product to 10,000 gallons of water to obtain at least 600 ppm available chlorine. Apply so that all barrows, gates, rock and dam are treated with product. Permit high tide to fill the pond and then close gates. Allow water to stand for 2 to 3 days until the available chlorine level reaches zero. Open gates and allow 2 tidal cycles to flush the pond before returning lobsters to pond.

CONDITIONING LIVE OYSTERS - Thoroughly mix 5 oz. of this product to 10,000 gallons of water at 50 to 70°F to obtain 0.5 ppm available chlorine. Expose oysters to this solution for at least 15 minutes, monitoring the available chlorine level so that it does not fall below 0.05 ppm. Repeat entire process if the available chlorine level drops below 0.05 ppm or the temperature falls below 50°F.

CONTROL OF SCAVENGERS IN FISH HATCHERY PONDS - Prepare a solution containing 200 ppm of available chlorine by mixing 2 oz. of product with 10 gallons of water. Pour into drained pond potholes. Repeat if necessary. Do not put desirable fish back into refilled ponds until chlorine residual has dropped to 0 ppm, as determined by a test kit.

SANITIZATION OF DIALYSIS MACHINES

Flush equipment thoroughly with water prior to using this product. Thoroughly mix 6 oz. of this product to 10 gallons of water to obtain at least 600 ppm available chlorine. Immediately use this product in the hemodialysate system allowing for a minimum contact time of 15 minutes at 20°C. Drain system of the sanitizing solution and thoroughly rinse with water. Discard and DO NOT reuse the spent sanitizer. Rinsate must be monitored with a suitable test kit to insure that no available chlorine remains in the system.

This product is recommended for decontaminating single and multipatient hemodialysate systems. This product has been shown to be an effective disinfectant (virucide, fungicide, bactericide, pseudomonicide) when tested by AOAC and EPA test methods. This product may not totally eliminate all vegatative microorganisms in hemodialysate delivery systems due to their construction and/or assembly, but can be relied upon to reduce the number of microorganisms to acceptable levels when used as directed. This product should be used in a disinfectant program which includes bacteriologiocal monitoring of the hemodialysate delivery system. This product os NOT recommended for use in hemodialysate or reverse osmosis (RO) membranes.

Consult the guidelines for hemodialysate systems which are available from the Hepatitis Laboratories, CDC, Phoenix, AR 85021.

ASPHALT OR WOOD ROOFS AND SIDINGS

To control fungus and mildew, first remove all physical soil by brushing and hosing with clean water, and apply a 5000 ppm available chlorine solution. Mix 5 oz. of this product per gallon of water and brush or spray roof or siding. After 30 minutes, rinse by hosing with clean water.

BOAT BOTTOMS

To control slime on boat bottoms, sling a plastic tarp under boat, retaining enough water to cover the fouled bottom area, but not allowing water to enter enclosed area. This envelope should contain approximately 500 gallons of water for a 14 foot boat. Add 18 oz. of this product to this water to obtain a 35 ppm available chlorine concentration. Leave immersed for 8 to 12 hours. Repeat if necessary. Do not discharge the solution until the free chlorine level has dropped to 0 ppm, as determined by a swimming pool test kit.

ARTIFICIAL SAND BEACHES

To sanitize the sand, spray a 500 ppm available chlorine solution containing 5 oz. of this product per 10 gal. of water at frequent intervals. Small areas can be sprinkled with a watering can.

TOILET BOWL SANITIZERS

[These products are marketed as individual packages for placement in the toilet. Therefore, use directions are not appropriate.]

[Claims are limited to sanitization. No claims for disinfection are permitted.]

PRODUCT NAME

ACTIVE INGREDIENT:
Sodium Hypochlorite.....................12.5%
INERT INGREDIENTS:.......................87.5%

KEEP OUT OF REACH OF CHILDREN

DANGER

STATEMENT OF PRACTICAL TREATMENT (FIRST AID)*

IF CONTACT WITH EYES OCCURS, flush with water for at least 15 minutes. Get prompt medical attention.

IF CONTACT WITH SKIN OCCURS, wash with plenty of soap and water.

IF SWALLOWED, drink large quantities of milk or gelatin solution, if these are not available, drink large quantities of water. DO NOT give vinegar or other acids. DO NOT induce vomiting. Get prompt medical attention.

(See additional precautions on side panel.)

Manufactured by:
ABC Chemical Corporation
P.O. Box 99
New York, New York
99999

EPA REG NO. 10237-20007 EPA EST 10237-KS-1
NET CONTENTS:

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*It is only suggested that First Aid statements be placed on the front panel. If placed on another panel (e.g. the back panel), the label must have the referral statement, "See other precautions on back panel".

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Corrosive, may cause severe skin and eye irritation or chemical burns to broken skin. Causes eye damage. Wear face shield or goggles and rubber gloves when handling this product. Wash after handling. Avoid breathing vapors. Vacate poorly ventilated areas as soon as possible. Do not return until strong odors have dissipated.

ENVIRONMENTAL HAZARDS

This product is toxic to fish. Do not discharge into lakes, streams, ponds or public waterways unless in accordance with a NPDES permit. For guidance, contact the regional office of the U.S. Environmental Protection Agency.

PHYSICAL OR CHEMICAL HAZARDS

STRONG OXIDIZING AGENT: Mix only with water according to label directions. Mixing this product with chemicals (e.g. ammonia, acids, detergents, etc.) or organic matter (e.g. urine, feces, etc.) will release chlorine gas which is irritating to eyes, lungs and mucous membranes.

MANUFACTURING-USE ONLY

For manufacturing-use only in the formulation of end-use products intended as:

- sanitizers of surfaces (e.g. wooden butcher blocks, stainless steel tops, concrete floors, tile walls); or
- sanitizers of commercial and household laundry; or
- agents to wash or assist in lye peeling of fruits and vegetables; or
- agents to help control microorganisms on eggs for human consumption; or
- disinfectants of poultry drinking water; or
- disinfectants of human drinking water (emergency/public/individual), swimming pool water, hubbard/immersion tank water, spas/hot tub, hydrotheraphy pools, human drinking water systems (e.g. water mains); or
- disinfectants of nonporous hard surfaces (e.g. tile, glass, stainless steel, fibreglass); or
- agents to help control microorganisms in sewage, wastewater, industrial and pulp and paper process water systems; or
- algicides/slimicides in cooling towers or evaporative condensers; or
- sanitizers of dialysis machines; or
- sanitizers of toilet bowls; or
- agents to help control algae and bacteria in fish and lobster ponds/tanks and conditioning oysters; or
- agents to help control slime on boat bottoms; or
- agents to sanitize and deodorize artificial sand beaches; or
- agents to kill scavenger fish in fish hatchery ponds.

Reformulators and repackagers of this product must obtain their own registrations from the Environmental Protection Agency.

[NOTE - IF MANUFACTURING-USE IS SPECIFIED ON THE LABEL, NO END-USE DIRECTIONS MAY APPEAR ON THE LABEL.]

PRODUCT NAME

ACTIVE INGREDIENT:
Calcium Hypochlorite.......................65%
INERT INGREDIENTS:.........................35%

KEEP OUT OF REACH OF CHILDREN

DANGER

STATEMENT OF PRACTICAL TREATMENT (FIRST AID)*

IF CONTACT WITH EYES OCCURS, flush with cold water for at least 15 minutes. Get medical attention.

IF CONTACT WITH SKIN, brush off excess chemical and flush skin with cold water for at least 15 minutes. If irritation persists, get medical attention.

IF SWALLOWED, feed bread soaked in milk, followed by olive oil or cooking oil. DO NOT induce vomiting. Call a physician immediately.

(See additional precautions on side panel.)

Manufactured by:
ABC Chemical Corporation
P.O. Box 99
New York, New York
99999

EPA REG NO. 10237-20005 EPA EST 10237-KS-1
NET CONTENTS:

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*It is only suggested that First Aid statements be placed on the front panel. If placed on another panel (e.g. the back panel), the label must have the referral statement, "See other precautions on back panel".

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Highly corrosive. Causes skin and eye damage. May be fatal if swallowed. Do not get in eyes, on skin or on clothing. Wear goggles or safety glasses and rubber gloves when handling this product. Irritating to nose and throat. Avoid breathing dust. Remove and wash contaminated clothing before reuse.

ENVIRONMENTAL HAZARDS

This product is toxic to fish. Do not discharge into lakes, streams, ponds or public waterways unless in accordance with a NPDES permit. For guidance, contact the regional office of the U.S. Environmental Protection Agency.

PHYSICAL OR CHEMICAL HAZARDS

STRONG OXIDIZING AGENT: Mix only with water. Use clean dry utensils. Do not add this product to any dispensing devise containing remnents of any other product. Such use may cause a violent reaction leading to fire or explosion. Contamination with moisture, organic matter or other chemicals will start a chemical reaction and generate heat, chlorine gas (and possible fire and explosion). In case of contamination or decomposition, do not reseal container. If possible, isolate container in open air or well ventilated area. Flood area with large volumes of water, if necessary.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

STORAGE AND DISPOSAL

Keep this product dry in a tightly closed container, when not in use. Store in a cool, dry, well ventilated area away from heat or open flame. In case of decomposition, isolate container (if possible) and flood area with large amounts of water to dissolve all material before discarding this container. Do not reuse empty container but place in trash collection. Do not contaminate food or feed by storage, disposal, or cleaning of equipment.

SWIMMING POOL WATER DISINFECTION

For a new pool or spring start-up, superchlorinate with 10 to 20 oz. of product for each 10,000 gallons of water to yield 5 to 10 ppm available chlorine by weight. Check the level of available chlorine with a test kit. Adjust and maintain pool water pH to between 7.2 to 7.6. Adjust and maintain the alkalinity of the pool to between 50 to 100 ppm.

To maintain the pool, add manually or by a feeder device 2 oz. of this product for each 10,000 gallons of water to yield an available chlorine residual between 0.6 to 1.0 ppm by weight. Stabilized pools should maintain a residual of 1.0 to 1.5 ppm available chlorine. Test the pH, available chlorine residual and alkalinity of the water frequently with appropriate test kits. Frequency of water treatment will depend upon temperature and number of swimmers.

Every 7 days, or as necessary, superchlorinate the pool with 10 to 20 oz. of product for each 10,000 gallons of water to yield 5 to 10 ppm available chlorine by weight. Check the level of available chlorine with a test kit. Do not reenter pool until the chlorine residual is between 1.0 to 3.0 ppm.

At the end of the swimming pool season or when water is to be drained from the pool, chlorine must be allowed to dissipate from treated pool water before discharge. Do not chlorinate the pool within 24 hours prior to discharge.

WINTERIZING POOLS - While water is still clear & clean, apply 0.6 oz. of product per 1000 gallons, while filter is running, to obtain a 3 ppm available chlorine residual, as detemined by a suitable test kit. Cover pool, prepare heater, filter and heater components for winter by following manufacturers' instructions.

SPAS, HOT-TUBS, IMMERSION TANKS, ETC.

SPAS/HOT-TUBS - Apply 0.5 oz. of product per 500 gallons of water to obtain a free available chlorine concentration of 5 ppm, as determined by a suitable chlorine test kit. Adjust and maintain pool water pH to between 7.2 and 7.8. Some oils, lotions, fragrances, cleaners, etc. may cause foaming or cloudy water as well as reduce the efficiency of the product.

To maintain the water, apply 0.5 oz. of product per 500 gallons of water over the surface to maintain a chlorine concentration of 5 ppm.

After each use, shock treat with 1.5 oz. of this product per 500 gallons of water to control odor and algae.

During extended periods of disuse, add 1.5 oz. of product daily per 500 gallons of water to maintain a 3 ppm chlorine concentration.

HUBBARD AND IMMERSION TANKS - Add 0.5 oz. of this product per 100 gallons of water before patient use to obtain a chlorine residual of 25 ppm, as determined by a suitable test kit. Adjust and maintain the water pH to between 7.2 and 7.6. After each use drain the tank. Add 0.5 oz. to a bucket of water and circulate this solution

through the agitator of the tank for 15 minutes and then rinse out the solution. Clean tank thoroughly and dry with clean cloths.

HYDROTHERAPY TANKS - Add 1 oz. of this product per 1000 gallons of water to obtain a chlorine residual of 1 ppm, as determined by a suitable chlorine test kit. Pool should not be entered until the chlorine residual is below 3 ppm. Adjust and maintain the water pH to between 7.2 and 7.6. Operate pool filter continuously. Drain pool weekly, and clean before refilling.

SANITIZATION OF NONPOROUS FOOD CONTACT SURFACES

RINSE METHOD - A solution of 100 ppm available chlorine may be used in the sanitizing solution if a chlorine test kit is available. Solutions containing an initial concentration of 100 ppm available chlorine must be tested and adjusted periodically to insure that the available chlorine does not drop below 50 ppm. Prepare a 100 ppm sanitizing solution by thoroughly mixing 1 oz. of this product with 40 gallons of water. If no test kit is available, prepare a sanitizing solution by throughly mixing 1 oz. of this product with 20 gallons of water to provide approximately 200 ppm available chlorine by weight.

Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. If solution contains less than 50 ppm available chlorine, as determined by a suitable test kit, either discard the solution or

add sufficient product to reestablish a 200 ppm residual. Do not rinse equipment with water after treatment and do not soak equipment overnight. Sanitizers used in automated systems may be used for general cleaning but may not be re-used for sanitizing purposes.

IMMERSION METHOD - A solution of 100 ppm available chlorine may be used in the sanitizing solution if a chlorine test kit is available. Solutions containing an initial concentration of 100 ppm available chlorine must be tested and adjusted periodically to insure that the available chlorine does not drop below 50 ppm. Prepare a 100 ppm sanitizing solution by thoroughly mixing 1 oz. of this product with 40 gallons of water. If no test kit is available, prepare a sanitizing solution by throughly mixing 1 oz. of this product with 20 gallons of water to provide approximately 200 ppm available chlorine by weight.

Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. If solution contains less than 50 ppm available chlorine, as determined by a suitable test kit, either discard the solution or add sufficient product to reestablish a 200 ppm residual. Do not rinse equipment with water after treatment.

Sanitizers used in automated systems may be used for general cleaning but may not be re-used for sanitizing purposes.

FLOW/PRESSURE METHOD - Disassemble equipment and throughly clean after use. Assemble equipment in operating position prior to use. Prepare a volume of a 200 ppm available chlorine sanitizing solution equal to 110 % of volume capacity of the equipment by mixing the product in a ratio of 1 oz. product with 20 gallons of water. Pump solution through the system until full flow is obtained at all extremities, the system is completely filled with the sanitizer and all air is removed from the system. Close drain valves and hold under pressure for at least 2 minutes to insure contact with all internal surfaces. Remove some cleaning solution from drain valve and test with a chlorine test kit. Repeat entire cleaning/sanitizing process if effluent contains less than 50 ppm available chlorine. Rinse system with potable water prior to use.

CLEAN-IN-PLACE METHOD - Throughly clean equipment after use. Prepare a volume of a 200 ppm available chlorine sanitizing solution equal to 110 % of volume capacity of the equipment by mixing the product in a ratio of 1 oz. product with 20 gallons of water. Pump solution through the system until full flow is obtained at all extremities, the system is completely filled with the sanitizer and all air is removed from the system. Close drain valves and hold under pressure for at least 10 minutes to insure contact with all internal surfaces. Remove some cleaning solution from drain valve and test with a chlorine test kit. Repeat entire cleaning/sanitizing process if effluent contains less than 50 ppm available chlorine. Rinse system with potable water prior to use.

SPRAY/FOG METHOD - Preclean all surfaces after use. Use a 200 ppm available chlorine solution to control bacteria, mold or fungi and a 600 ppm solution to control bacteriophage. Prepare a 200 ppm sanitizing solution of sufficient size by throuoghly mixing the product in a ratio of 1 oz. product with 20 gallons of water. Prepare a 600 ppm solution by thoroughly mixing the product in a ratio of 3 oz. product with 20 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Always empty and rinse spray/fog equipment with potable water after use. Throughly spray or fog all sufaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours. Prior to using equipment, rinse all surfaces treated with a 600 ppm solution with a 200 ppm solution.

SANITIZATION OF POROUS FOOD CONTACT SURFACES

RINSE METHOD - Prepare a sanitizing solution by throughly mixing 3 oz. of this product with 20 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. Rinse equipment with water after treatment and do not soak equipment overnight.

IMMERSION METHOD - Prepare a sanitizing solution by throughly mixing, in an immersion tank, 3 oz. of this product with 20 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Rinse equipment with water after treatment.

SPRAY/FOG METHOD - Preclean all surfaces after use. Prepare a 600 ppm available chlorine sanitizing solution of sufficient size by throughly mixing the product in a ratio of 3 oz. product with 20 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Always empty and rinse spray/fog equipment with potable water after use. Throughly spray or fog all sufaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours. Prior to using equipment, rinse all surfaces with a 200 ppm available chlorine solution. Prepare a 200 ppm sanitizing solution by thoroughly mixing 1 oz. of this product with 20 gallons of water.

SANITIZATION OF NONPOROUS NON-FOOD CONTACT SURFACES

RINSE METHOD - Prepare a sanitizing solution by throughly mixing 1 oz. of this product with 20 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.

IMMERSION METHOD - Prepare a sanitizing solution by throughly mixing, in an immersion tank, 1 oz. of this product with 20 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

SPRAY/FOG METHOD - Preclean all surfaces after use. Prepare a 200 ppm available chlorine sanitizing solution of sufficient size by throughly mixing the product in a ratio of 1 oz. product with 20 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. prior to using equipment, throughly spray or fog all sufaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours.

DISINFECTION OF NONPOROUS NON-FOOD CONTACT SURFACES

RINSE METHOD - Prepare a disinfecting solution by throughly mixing 3 oz. of this product with 20 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the disinfecting solution, maintaining contact with the solution for at least 10 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.

IMMERSION METHOD - Prepare a disinfecting solution by throughly mixing, in an immersion tank, 3 oz. of this product with 20 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the disinfecting solution for at least 10 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

SANITIZATION OF POROUS NON-FOOD CONTACT SURFACES

RINSE METHOD - Prepare a sanitizing solution by throughly mixing 3 oz. of this product with 20 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.

IMMERSION METHOD - Prepare a sanitizing solution by throughly mixing, in an immersion tank, 3 oz. of this product with 20 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

SPRAY/FOG METHOD - After cleaning, sanitize non-food contact surfaces with 600 ppm available chlorine by throuoghly mixing the product in a ratio of 3 oz. of this product with 20 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Always empty and rinse spray/fog equipment with potable water after use. prior to using equipment, throughly spray or fog all sufaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours.

SEWAGE & WASTEWATER EFFLUENT TREATMENT

The disinfection of sewage effluent must be evaluated by determining the total number of coliform bacteria and/or fecal coliform bacteria, as determined by the Most Probable Number (MPN) procedure, of the chlorinated effluent has been reduced to or below the maximum permited by the controlling regulatory jurisdiction.

On the average, satisfactroy disinfection of secondary wastewater effluent can be obtained when the chlorine residual is 0.5 ppm after 15 minutes contact. Although the chlorine residual is the critical critical factor in disinfection, the importance of correlating chlorine residual with bacterial kill must be emphasized. The MPN of the effluent, which is directly related to the water quality standards requirements, should be the final and primary standard and the chlorine residual should be considered an operating standard valid only to the extent verified by the coliform quality of the effluent.

The following are critical factors affecting wastewater disinfection.

1. Mixing: It is imperative that the product and the wastewater be instantaneously and completly flash mixed to assure reaction with every chemically active soluble and particulate component of the wastewater.

2. Contacting: Upon flash mixing, the flow through the system must be maintained.

3. Dosage/Residual Control: Successful disinfection is extremely dependent on response to fluctuating chlorine demand to maintain a predetermined, desirable chlorine level. Secondary effluent should

contain 0.2 to 1.0 ppm chlorine residual after a 15 to 30 minute contact time. A reasonable average of residual chlorine is 0.5 ppm after 15 minutes contact time.

SEWAGE AND WASTEWATER TREATMENT

EFFLUENT SLIME CONTROL - Apply a 100 to 1000 ppm available chlorine solution at a location which will allow complete mixing. Prepare this solution by mixing 2 to 20 oz. of this product with 100 gallons of water. Once control is evident, apply a 15 ppm available chlorine solution. Prepare this solution by mixing 0.3 oz. of this product with 100 gallons of water.

FILTER BEDS - SLIME CONTROL: Remove filter from service, drain to a depth of 1 ft. above filter sand, and add 16 oz. of product per 20 sq/ft evenly over the surface. Wait 30 minutes before draining water to a level that is even with the top of the filter. Wait for 4 to 6 hours before completely draining and backwashing filter.

DISINFECTION OF DRINKING WATER (EMERGENCY/PUBLIC/INDIVIDUAL SYSTEMS)

PUBLIC SYSTEMS: Mix a ratio of 1 oz. of this product to 6000 gallons of water. Begin feeding this solution with a hypochlorinator until a free available chlorine residual of at least 0.2 ppm and no more than 0.6 ppm is attained throughout the distribution system. Check water frequently with a chlorine test kit. Bacteriological sampling must be conducted at a frequency no less than that prescribed by the National Interim Primary Drinking Water Regulations. Contact your local Health Department for further details.

INDIVIDUAL SYSTEMS: - DUG WELLS Upon completion of the casing (lining) wash the interior of the casing (lining) with a 100 ppm available chlorine solution using a stiff brush. This solution can be made by throughly mixing 1 oz. of this product into 40 gallons of water. After covering the well, pour the sanitizing solution into the well through both the pipesleeve opening and the pipeline. Wash the exterior of the pump cylinder also with the sanitizing solution. Start pump and pump water until strong odor of chlorine in water is noted. Stop pump and wait at least 24 hours. After 24 hours flush well until all traces of chlorine have been removed from the water. Contact your local Health Department for further details.

INDIVIDUAL WATER SYSTEMS: DRILLED, DRIVEN & BORED WELLS - Run pump until water water is as free from turbity as possible. Pour a 100 ppm available chlorine sanitizing solution into the well. This solution can be made by throughly mixing 1 oz. of this product into 40 gallons of water. Add 5 to 10 gallons of clean, chlorinted water to the well in order to force the sainizer into the rock formation. Wash the exterior of pump cylinder with the sanitizer. Drop pipeline into well, start pump and pump water until strong odor of chlorine in water is noted. Stop pump and wait at least 24 hours. After 24 hours flush well until all traces of chlorine have been removed from the water. Deep wells with high water levels may necessitate the use of special methods for introduction of the sanitizer into the well. Consult your local Health Department for further details.

INDIVIDUAL WATER SYSTEMS: FLOWING ARTESIAN WELLS Artesian wells generally do not require disinfection. If analyses indicate persistant contamination, the well should be disinfected. Consult your local Health Department for further details.

EMERGENCY DISINFECTION - When boiling of water for 1 minute is not practical, water can be made potable by using this product. Prior to addition of the sanitizer, remove all suspended material by filtration or by allowing it to settle to the bottom. Decant the clarified, contaminated water to a clean container and add 1 grain of this product to 1 gallon of water. One grain is approximately the size of the letter "O" in this sentence. Allow the treated water to stand for 30 minutes. Properly treated water should have a slight chlorine odor, if not, repeat dosage and allow the water to stand an additional 15 minutes. The treated water can then be made palatable by pouring it between clean containers for several times.

PUBLIC WATER SYSTEMS

RESERVOIRS - ALGAE CONTROL: Hypochlorinate streams feeding the reservoir. Suitable feeding points should be selected on each stream at least 50 yards upstream from the points of entry into the reservoir.

MAINS - Thoroughly flush section to be sanitized by discharging from hydrants. Permit a water flow of at least 2.5 feet per minute to continue under pressure while injecting this product by means of a hypochlorinator. Stop water flow when a chlorine residual test of 50 ppm is obtained at the low pressure end of the new main section after a 24 hour retention time. When chlorination is completed, the system must be flushed free of all heavily chlorinated water.

NEW TANKS, BASINS, ETC. - Remove all physical soil from surfaces. Place 4 oz. of this product for each 5 cubic feet of working capacity (500 ppm available chlorine. Fill to working capacity and allow to stand for at least 4 hours. Drain and flush with potable water and return to surface.

NEW FILTER SAND - Apply 16 oz. of this product for each 150 to 200 cubic feet of sand. The action of the product dissolving as the water passes through the bed will aid in sanitizing the new sand.

NEW WELLS - Flush the casing with a 50 ppm available chlorine solution of water containing 1 oz. of this product for each 100 gallons of water. The solution should be pumped or fed by gravity into the well after thorough mixing with agitation. The well should stand for several hours or overnight under chlorination. It may then be pumped until a representative raw water sample is obtained. Bacterial examination of the water will indicate whether further treatment is necessary.

EXISTING EQUIPMENT - Remove equipment from service, thoroughly clean surfaces of all physical soil. Sanitize by placing 4 oz. of this product for each 5 cubic feet capacity (approximately 500 ppm available chlorine). Fill to working capacity and let stand at least 4 hours. Drain and place in service. If the previous treatment is not practical, surfaces may be sprayed with a solution containing 1 oz. of this product for each 5 gallons of water (approximately 1000 ppm available chlorine). After drying, flush with water and return to service.

EMERGENCY DISINFECTION AFTER FLOODS

WELLS - Thoroughly flush contaminated casing with a 500 ppm available chlorine solution. Prepare this solution by mixing 1 oz. of this product with 10 gallons of water. Backwash the well to increase yield and reduce turbidity, adding sufficient chlorinating solution to the backwash to produce a 10 ppm available chlorine residual, as determined by a chlorine test kit. After the turbididty has been reduced and the casing has been treated, add sufficient chlorinating solution to produce a 50 ppm available chlorine residual. Aggitate the well water for several hours and take a representative water sample. Retreat well if water samples are biologically unacceptable.

RESERVOIRS - In case of contamination by overflowing streams, establish hypochlorinating stations upstream of the reservior. Chlorinate the inlet water until the entire reservior obtains a 0.2 ppm available chlorine residual, as determined by a suitable chlorine test kit. In case of contamination from surface drainage, apply sufficient product directly to the reservior to obtain a 0.2 ppm available chlorine residual in all parts of the reservior.

BASINS, TANKS, FLUMES, ETC. - Thoroughly clean all equipment, then apply 4 oz. of product per 5 cu. ft. of water to obtain 500 ppm available chlorine, as determined by a suitable test kit. After 24 hours drain, flush, and return to service. If the previous method is not suitable, spray or flush the equipment with a solution containing 1 oz. of this product for each 5 gallons of water (1000 ppm available chlorine). Allow to stand for 2 to 4 hours, flush and return to service.

FILTERS - When the sand filter needs replacement, apply 16 oz. of this product for each 150 to 200 cubic feet of sand. When the filter is severely contaminated, additional product should be distributed over the surface at the rate of 16 oz. per 20 sq. ft.. Water should stand at a depth of 1 foot above the surface of the filter bed for 4 to 24 hours. When filter beds can be backwashed of mud and silt, apply 16 oz. of this product per each 50 sq. ft., allowing the water to stand at a depth of 1 foot above the filter sand. After 30 minutes, drain water to the level of the filter. After 4 to 6 hours drain, and proceed with normal backwashing.

DISTRIBUTION SYSTEM - Flush repaired or replaced section with water. Establish a hypochlorinating station and apply sufficient product until a consistent available chlorine residual of at least 10 ppm remains after a 24 hour retention time. Use a chlorine test kit.

EMERGENCY DISINFECTION AFTER FIRES

CROSS CONNECTIONS OR EMERGENCY CONNECTIONS - Hypochlorination or gravity feed equipment should be set up near the intake of the untreated water supply. Apply sufficient product to give a chlorine residual of at least 0.1 to 0.2 ppm at the point where the untreated supply enters the regular distribution system. Use a chlorine test kit.

EMERGENCY DISINFECTION AFTER DROUGHTS.

SUPPLEMENTARY WATER SUPPLIES - Gravity or mechanical hypochlorite feeders should be set up on a supplementary line to dose the water to a minimum chlorine residual of 0.2 ppm after a 20 minute contact time. Use a chlorine test kit.

WATER SHIPPED IN BY TANKS, TANK CARS, TRUCKS, ETC. - Thoroughly clean all containers and equipment. Spray a 500 ppm available chlorine solution and rinse with potable water after 5 minutes. This solution is made by mixing 1 oz. of this product for each 5 gallons of water. During the filling of the containers, dose with sufficient amounts of this product to provide at least a 0.2 ppm chlorine residual. Use a chlorine test kit.

EMERGENCY DISINFECTION AFTER MAIN BREAKS

MAINS - Before assembly of the repaired section, flush out mud and soil. Permit a water flow of at least 2.5 feet per minute to continue under pressure while injecting this product by means of a hypochlorinator. Stop water flow when a chlorine residual test of 50 ppm is obtained at the low pressure end of the new main section after a 24 hour retention time. When chlorination is completed, the system must be flushed free of all heavily chlorinated water.

COOLING TOWER/EVAPORATIVE CONDENSER WATER

SLUG FEED METHOD - Initial Dose: When system is noticably fouled, apply 10 to 20 oz. of this product per 10,000 gallons of water in the system to obtain from 5 to 10 ppm available chlorine. Repeat until control is achieved.
Subsequent Dose: When microbial control is evident, add 2 oz. of this product per 10,000 gallons of water in the system daily, or as needed to maintain control and keep the chlorine residual at 1 ppm. Badly fouled systems must be cleaned befor treatment is begun.

INTERMITTENT FEED METHOD - Initial Dose: When system is noticably fouled, apply 10 to 20 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Apply half (or 1/3, 1/4, or 1/5) of this intial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blowdown.

Subsequent Dose: When microbial control is evident, add 2 oz. of this product per 10,000 gallons of water in the system to obtain a 1 ppm residual. Apply half (or 1/3, 1/4, or 1/5) of this intial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blowdown. Badly fouled systems must be cleaned before treatment is begun.

CONTINUOUS FEED METHOD - Initial Dose: When system is noticably fouled, apply 10 to 20 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine.

Subsequent Dose: Maintain this treatment level by starting a continuous feed of 1 oz. of this product per 3,000 gallons of water lost by blowdown to maintain a 1 ppm residual. Badly fouled systems must be cleaned before treatment is begun.

BRIQUETTES OR TABLETS - Initially slug dose the system with 10 oz. of this product per 10,000 gallons of water in the system. Badly fouled systems must be cleaned before treatment is begun.

Subsequent Dose: When microbial control is evident, add 2 oz. of this product per 10,000 gallons of water in the system daily, or as needed to maintain control and keep the chlorine residual at 1 ppm. Badly fouled systems must be cleaned before treatment is begun.

LAUNDRY SANITIZERS

Household Laundry Sanitizers

IN SOAKING SUDS - Thoroughly mix 1 Tbs. of this product to 10 gallons of wash water to provide 200 ppm available chlorine. Wait 5 minutes, then add soap or detergent. Immerse laundry for at least 11 minutes prior starting the wash/rinse cycle.

IN WASHING SUDS - Thoroughly mix 1 Tbs. of this product to 10 gallons of wash water containing clothes to provide 200 ppm available chlorine. Wait 5 minutes,

then adding soap or detergent and start the wash/rinse cycle.

Commercial Laundry Sanitizers

Wet fabrics or clothes should be spun dry prior to sanitization. Thoroughly mix 1 oz. of this product with 20 gallons of water to yield 200 ppm available chlorine. Promptly after mixing the sanitizer, add the solution into the prewash prior to washing fabrics/clothes in the regular wash cycle with a good detergent. Test the level of available chlorine, if solution has been allowed to stand. Add more of this product if the the available chlorine level has dropped below 200 ppm.

FARM PREMISES

Remove all animals, poultry, and feed from premises, vehicles, and enclosures. Remove all litter and manure from floors, walls and surfaces of barns, pens, stalls, chutes and other facilities occupied or transverse by animals or poultry. Empty all troughs, racks and other feeding and watering appliances. Throughly clean all sufaces with soap or detergent and rinse with water. To disinfect, saturate all surfaces with a solution of at least 1000 ppm available chlorine for a period of 10 minutes. A 1000 ppm solution can be made by thoroughly mixing 2 oz. of this product with 10 gallons of water. Immerse all halters, ropes and other types of equipment used in handling and restraining animals or poultry, as well as the cleaned forks, shovels and scrapers used for removing litter and manure. Ventilate buildings, cars, boats and other closed spaces. Do not house livestaock or poultry or employ equipment until chlorine has been dissipated. All treated feed racks, mangers, troughs, automatic feeders, fountains and waterers must be rinsed with potable water before reuse.

PULP AND PAPER MILL PROCESS WATER SYSTEMS

SLUG FEED METHOD - Initial Dose: When system is noticably fouled, apply 10 to 20. oz. of this product per 10,000 gallons of water in the system to obtain from 5 to 10 ppm available chlorine. Repeat until control is achieved.

Subsequent Dose: When microbial control is evident, add 2 oz. of this product per 10,000 gallons of water in the system daily, or as needed to maintain control and keep the chlorine residual at 1 ppm. Badly fouled systems must be cleaned before treatment is begun.

INTERMITTENT FEED METHOD - Initial Dose: When system is noticably fouled, apply 10 to 20 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Apply half (or 1/3, 1/4, or 1/5) of this intial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blowdown.

Subsequent Dose: When microbial control is evident, add 2 oz. of this product per 10,000 gallons of water in the system to obtain a 1 ppm residual. Apply half (or 1/3, 1/4, or 1/5) of this intial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blowdown. Badly fouled systems must be cleaned before treatment is begun.

CONTINUOUS FEED METHOD - Initial Dose: When system is noticably fouled, apply 10 to 20 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine.

Subsequent Dose: Maintain this treatment level by starting a continuous feed of 2 oz. of this product per 1,000 gallons of water lost by blowdown to maintain a 1 ppm residual. Badly fouled systems must be cleaned before treatment is begun.

BRIQUETTES OR TABLETS - Initially slug dose the system with 10 oz. of this product per 10,000 gallons of water in the system. Badly fouled systems must be cleaned before treatment is begun.

Subsequent Dose: When microbial control is evident, add 2 oz. of this product per 10,000 gallons of water in the system daily, or as needed to maintain control and keep the chlorine residual at 1 ppm. Badly fouled systems must be cleaned before treatment is begun.

AGRICULTURAL USES

POST-HARVEST PROTECTION - Potatoes can be sanitized after cleaning and prior to storage by spraying with a sanitizing solution at a level of 1 gallon of sanitizing solution per tons of potatoes. Thoroughly mix 1 oz. of this product to 10 gallons of water to obtain 500 ppm available chlorine.

Disinfect leafcutting bee cells and bee boards by immersion in a solution containing 1 ppm available chlorine for 3 minutes. Allow cells to drain for 2 minutes and dry for 4 to 5 hours or until no chlorine odor can be detected. This solution is made by thoroughly mix 1/4 Tsp. of this product to 200 gallons of water. The bee domicile is disinfected by spraying with a 0.1 ppm solution until all surfaces are thoroughly wet. Allow the domicile to dry until all chlorine odor has dissipated.

FOOD EGG SANITIZATION - Throughly clean all eggs. Thoroughly mix 1 oz. of this product with 20 gallons of warm water to produce a 200 ppm available chlorine solution. The sanitizer temperature should not exceed 130°F. Spray the warm sanitizer so that the eggs are thoroughly wetted. Allow the eggs to thoroughl dry before casing or breaking. Do not apply a potable water rinse. The solution should not be re-used to sanitize eggs.

FRUIT & VEGETABLE WASHING - Thoroughly clean all fruits and vegetables in a wash tank. Thoroughly mix 1 oz. of this product in 200 gallons of water to make a sanitizing solution of 25 ppm available chlorine. After draining the tank, submerge fruit or vegetables for 2 minutes in a second wash tank containing the recirculating sanitizing solution. Spray rinse vegatables with the sanitizing solution prior to packaging. Rinse fruit with potable water only prior to packaging.

SEEDS - To control bacterial spot (Xanthomonas vesticatoris) on Pimento seeds, initially remove moist seeds from ripe fruits. To control surface fungi and bacteria on Tomato seeds initially wash seeds. Immediately soak seeds in 39,000 ppm solution for 15 minutes with continuous aggitation. After treatment rinse seeds in potable water for 15 minutes. Dry seeds to normal moisture. The solution may be made by mixing 8 oz. of this product with 1 gallon of water.

MUSHROOMS - To control bacterial blotch (Pseudomonas tolaasii), use a 100 to 200 ppm solution prior to watering mushroom production surfaces. This solution may be made by mixing 0.2 to 0.4 oz. of this product with 10 gallons of water. First application should begin when pins form, and thereafter, between breaks on a need basis depending on the occurence of bacterial blotch. This product may be applied directly to pins to control small infection foci. Apply 1.5 to 2.0 oz. per square foot of growing space.

POST-HARVEST ROOTS - To control and reduce the spread of soft rot causing organisms in water and on sweet potatoes (Ipomoea batatas), spray or dip the potatoes with a 150 to 500 ppm solution for 2 to 5 minutes. Thoroughly mix 0.3 to 1.0 oz. of this product per 10 gallons of water to obtain this solution. Monitor the chlorine concentration and change the solution after one hour or as needed.

AQUACULTURAL USES

FISH PONDS - Remove fish from ponds prior to treatment. Thoroughly mix 20 oz. of this product to 10,000 gallons of water to obtain 10 ppm available chlorine. Add more product to the water if the available chlorine level is below 1 ppm after 5 minutes. Return fish to pond after the available chlorine level reaches zero.

FISH POND EQUIPMENT - Thoroughly clean all equipment prior to treatment. Thoroughly mix 1 oz. of this product to 20 gallons of water to obtain 200 ppm available chlorine. Porous equipment should soak for one hour.

MAINE LOBSTER PONDS - Remove lobsters, seaweed etc. from ponds prior to treatment. Drain the pond. Thoroughly mix 1200 oz. of this product to 10,000 gallons of water to obtain at least 600 ppm available chlorine. Apply so that all barrows, gates, rock and dam are treated with product. Permit high tide to fill the pond and then close gates. Allow water to stand for 2 to 3 days until the available chlorine level reaches zero. Open gates and allow 2 tidal cycles to flush the pond before returning lobsters to pond.

CONDITIONING LIVE OYSTERS - Thoroughly mix 1 oz. of this product to 10,000 gallons of water at 50 to 70°F to obtain 0.5 ppm available chlorine. Expose oysters to this solution for at least 15 minutes, monitoring the available chlorine level so that it does not fall below 0.05 ppm. Repeat entire process if the available chlorine level drops below 0.05 ppm or the temperature falls below 50°F.

CONTROL OF SCAVENGERS IN FISH HATCHERY PONDS - Prepare a solution containing 200 ppm of available chlorine by mixing 0.5 oz. of product with 10 gallons of water. Pour into drained pond potholes. Repeat if necessary. Do not put desirable fish back into refilled ponds until chlorine residual has dropped to 0 ppm, as determined by a test kit.

SANITIZATION OF DIALYSIS MACHINES

Flush equipment thoroughly with water prior to using this product. Thoroughly mix 7 oz. of this product to 60 gallons of water to obtain at least 600 ppm available chlorine. Immediately use this product in the hemodialysate system allowing for a minimum contact time of 15 minutes at 20°F C. Drain system of the sanitizing solution and thoroughly rinse with water. Discard and DO NOT reuse the spent sanitizer. Rinsate must be monitored with a suitable test kit to insure that no available chlorine remains in the system.

This product is recommended for decontaminating single and multipatient hemodialysate systems. This product has been shown to be an effective disinfectant (virucide, fungicide, bactericide, pseudomonicide) when tested by AOAC and EPA test methods. This product may not totally eliminate all vegatative microorganisms in hemodialysate delivery systems due to their construction and/or assembly, but can be relied upon to reduce the number of microorganisms to acceptable levels when used as directed. This product should be used in a disinfectant program which includes bacteriologiocal monitoring of the hemodialysate delivery system. This product is NOT recommended for use in hemodialysate or reverse osmosis (RO) membranes.
Consult the guidelines for hemodialysate systems which are available from the Hepititis Laboratories, CDC, Phoenix, AR 85021.

TOILET BOWL SANITIZERS

[These products are marketed as individual packages for placement in the toilet. Therefore, use directions are not appropriate.]

[Claims are limited to sanitization. No claims for disinfection are permited.

ASPHALT OR WOOD ROOFS AND SIDINGS

To control fungus and mildew, first remove all physical soil by brushing and hosing with clean water, and apply a 5000 ppm available chlorine solution. Mix 1 oz. of this product per gallon of water and brush or spray roof or siding. After 30 minutes, rinse by hosing with clean water.

BOAT BOTTOMS

To control slime on boat bottoms, sling a plastic tarp under boat, retaining enough water to cover the fouled bottom area, but not allowing water to enter enclosed area. This envelope should contain approximately 500 gallons of water for a 14 foot boat. Add 3.5 oz. of this product to this water to obtain a 35 ppm available chlorine concentration. Leave immersed for 8 to 12 hours. Repeat if necessary. Do not discharge the solution until the free chlorine level has dropped to 0 ppm, as determined by a swimming pool test kit.

ARTIFICIAL SAND BEACHES

To sanitize the sand, spray a 500 ppm available chlorine solution containing 0.1 oz. of this product per gallon of water at frequent intervals. Small areas can be sprinkled with a watering can.

FOOD PROCESSING PLANTS

POULTRY DRINKING WATER - Spray or flush with a solution containing 1 oz. of this product for every gallon of water. Treat poultry drinking water to a dosage of 1 to 5 ppm available chlorine by adding 1 to 5 oz. of this product per 1000 gallons of water.

FISH FILLETING - Eviscerated and degilled fish removed from the fishing vessel are placed in a wash tank of seawater or fresh water which has been treated with enough product to produce a chlorine residual of 25 ppm, as determined by a test kit. Remove fish from treated water 24 to 48 hours before filleting. After scaling the fish are again washed in a 25 ppm solution, and are ready for filleting.

PECAN CRACKING AND DYEING - Prepare a 1000 ppm available chlorine soaking solution by adding 1 oz. of this product for each 5 gallons of water to obtain a 1000 ppm available chlorine content. Soak for a minimum of 10 minutes. After removal, age pecans for 24 hours. Before bleaching, pecans are placed in a rotary cleaner where they are washed, drained, and soaked in a 2% sulphuric acid bath at 80 to 90°F for 1 minute. Transfer to a solution containing 100 oz. of this product for each 100 gallons of water (5000 ppm). After 4 to 8 minutes, they are drained and washed in a 1% sulphuric acid bath at 80 to 90°F. They are then dried.

BACTERIAL CONTROL IN SUGAR REFINERIES - To reduce dust-collecting bacteria, apply a solution containing 16 oz. of this product for each gallon of water (8000 ppm available chlorine) continuously by gravity into the recirculating low concentration syrup in the dust collector. Adjust the feed to give a chlorine residual of about 10 ppm in the syrup leaving the dust collector system. To reduce gum-forming bacteria, coat raw sugar with a solution of low concentration of product to control bacteria. To control of thermophillic bacteria in vacuum pans, feed a solution containing 1 pound of this product for each ton of sugar (dry weight) in the vacuum pans.

PRODUCT NAME

ACTIVE INGREDIENT:
Calcium Hypochlorite........................65%
INERT INGREDIENTS:............................35%

KEEP OUT OF REACH OF CHILDREN

DANGER

STATEMENT OF PRACTICAL TREATMENT (FIRST AID)*

IF CONTACT WITH EYES OCCURS, flush with cold water for at least 15 minutes. Get medical attention.

IF CONTACT WITH SKIN, brush off excess chemical and flush skin with cold water for at least 15 minutes. If irritation persists, get medical attention.

IF SWALLOWED, feed bread soaked in milk, followed by olive oil or cooking oil. DO NOT induce vomiting. Call a physician immediately.

(See additional precautions on side panel.)

Manufactured by:
ABC Chemical Corporation
P.O. Box 99
New York, New York
99999

EPA REG NO. 10237-20008 EPA EST 10237-KS-1
NET CONTENTS:

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*It is only suggested that First Aid statements be placed on the front panel. If placed on another panel (e.g. the back panel), the label must have the referral statement, "See other precautions on back panel".

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Highly corrosive. Causes skin and eye damage. May be fatal if swallowed. Do not get in eyes, on skin or on clothing. Wear goggles or face shield and rubber gloves when handling this product. Irritating to nose and throat. Avoid breathing dust. Remove and wash contaminated clothing before reuse.

ENVIRONMENTAL HAZARDS

This product is toxic to fish. Do not discharge into lakes, streams, ponds or public waterways unless in accordance with a NPDES permit. For guidance, contact the regional office of the U.S. Environmental Protection Agency.

PHYSICAL OR CHEMICAL HAZARDS

STRONG OXIDIZING AGENT: Mix only with water. Use clean dry utensils. Do not add this product to any dispensing devise containing remnents of any other product. Such use may cause a violent reaction leading to fire or explosion. Contamination with moisture, organic matter or other chemicals will start a chemical reaction and generate heat, chlorine gas (and possible fire and explosion). In case of contamination or decomposition, do not reseal container. If possible, isolate container in open air or well ventilated area. Flood area with large volumes of water, if necessary.

MANUFACTURING-USE ONLY

For manufacturing-use only in the formulation of end-use products intended as:

- sanitizers of surfaces (e.g. wooden butcher blocks, stainless steel tops, concrete floors, tile walls); or
- sanitizers of commercial and household laundry; or
- agents to help control microorganisms on mushrooms (pins), potatoes, sweet potatoes (postharvest), pimento and tomato seeds, pecans, fish fillets, refining sugar; or
- agents to help control microorganisms on eggs for human consumption; or
- disinfectants of poultry drinking water; or
- disinfectants of human drinking water (emergency/public/individual), swimming pool water, hubbard/immersion tank water, spas/hot tub, hydrotheraphy pools, human drinking water systems (e.g. water mains); or
- disinfectants of nonporous hard surfaces (e.g. tile, glass, stainless steel, fibreglass); or
- agents to help control microorganisms in sewage, wastewater, industrial and pulp and paper process water systems; or
- algicides/slimicides in cooling towers or evaporative condensers; or
- sanitizers of dialysis machines; or
- sanitizers of toilet bowls; or
- agents to help control algae and bacteria in fish and lobster ponds/tanks and conditioning oysters; or
- agents to help control slime on boat bottoms; or
- agents to sanitize and deodorize artificial sand beaches; or
- agents to kill scavenger fish in fish hatchery ponds.

Reformulators and repackagers of this product must obtain their own registrations from the Environmental Protection Agency.

[NOTE - IF MANUFACTURING-USE IS SPECIFIED ON THE LABEL, NO END-USE DIRECTIONS MAY APPEAR ON THE LABEL.]

List of EPA Regional Offices

REGION 1: Environmental Protection Agency
John F. Kennedy Federal Building, Room 2203
Boston, MA 02203

REGION 2: Environmental Protection Agency
26 Federal Plaza, Room 900
New York, NY 10278

REGION 3: Environmental Protection Agency
841 Chestnut Street
Philadelphia, PA 19107

REGION 4: Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, GA 30365

REGION 5: Environmental Protection Agency
230 South Dearborn Street
Chicago, IL 60604

REGION 6: Environmental Protection Agency
1201 Elm Street
Dallas, TX 75270

REGION 7: Environmental Protection Agency
726 Minnesota Avenue
Kansas City, KS 66101

REGION 8: Environmental Protection Agency
Suite 1300
999 18th Street
Denver, CO 80202

REGION 9: Environmental Protection Agency
215 Fremont Street
San Francisco, CA 94105

REGION 10: Environmental Protection Agency
1200 Sixth Avenue
Seattle, WA 98101